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TM 32-5811-015-34&P

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT
(INTERMEDIATE SUPPORT) MAINTENANCE MANUAL
AND REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR
PARTS AND SPECIAL TOOLS)

PANORAMIC INDICATOR
IP-1251/USQ
INDICATOR CONTROL
C-10027/USQ

TRACOR AEROSPACE, INC.
DAAK 21-84-C-0099

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WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or operating this equipment. Injury or death may result if personnel fail to observe safety precautions.

Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

Technical Manual

NO. 32-5811-015-34&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 15 MAY 1989

DIRECT SUPPORT AND GENERAL SUPPORT (INTERMEDIATE SUPPORT) MAINTENANCE MANUAL FOR PANORAMIC INDICATOR IP-1251A/USQ INDICATOR CONTROL C-10027/USQ

REPORTING OF ERRORS

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SAFETY SUMMARY

The following are general precautions that are not related to any specific procedures and, therefore, do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the high-voltage supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position, due to charges retained by capacitors. To avoid casualties, always remove power and discharge and ground a circuit before touching it.

DO NOT SERVICE OR AJUST ALONE

Under no circumstances should any person reach into or enter the enclosure for the purpose of servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

WARNINGS AND CAUTIONS

The following warnings and cautions are used in the text of this volume and are emphasized here and may be repeated in the text:

WARNING

High voltage is used in the operation of this equipment. Avoid contacting high-voltage connections when installing or repairing this equipment. Injury or death may result if personnel fail to observe safety precautions.

WARNING

Adequate ventilation should be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolve natural oils, prolonged contact with skin should be avoided. When necessary, use gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately. (page 4-4, 4-15, 4-16)

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. SCOPE.

This manual provides intermediate support maintenance information for Panoramic Indicator IP-1251A/USQ and Indicator Control C-10027/USQ, hereinafter referred to as the panoramic indicator and the indicator control, respectively (see figure 1-1). In addition, the manual provides general descriptions and data, and theory of operation.

1-2. MAINTENANCE FORMS AND RECORDS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Procedures for the destruction of Army materiel are contained in TM 750-244-2, Procedures for Destruction of Electronics Materiel To Prevent Enemy Use (Electronics Command).

1-4. ADMINISTRATIVE STORAGE.

Refer to TM 740-90-1, Administrative Storage of Equipment, for test procedures, forms and records, and inspections required during administrative storage of this equipment.

1-5. REPORTING OF ERRORS.

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded directly to the Commander, U.S. Army Electronic Materiel Readiness Activity, Vint Hill Farms Station, Warrenton, Virginia 22186, Attn: SELEM-MR-E-P.

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

EIRs will be submitted on SF 368 (Quality Deficiency Report) in accordance with DA Pam 738-750. EIRs should be mailed directly to the Commander, U.S. Army Electronic Materiel Readiness Activity, Vint Hill Farms Station, Warrenton, Virginia 22186, Attn: SELEM-ME-I. A reply will be furnished directly to you.

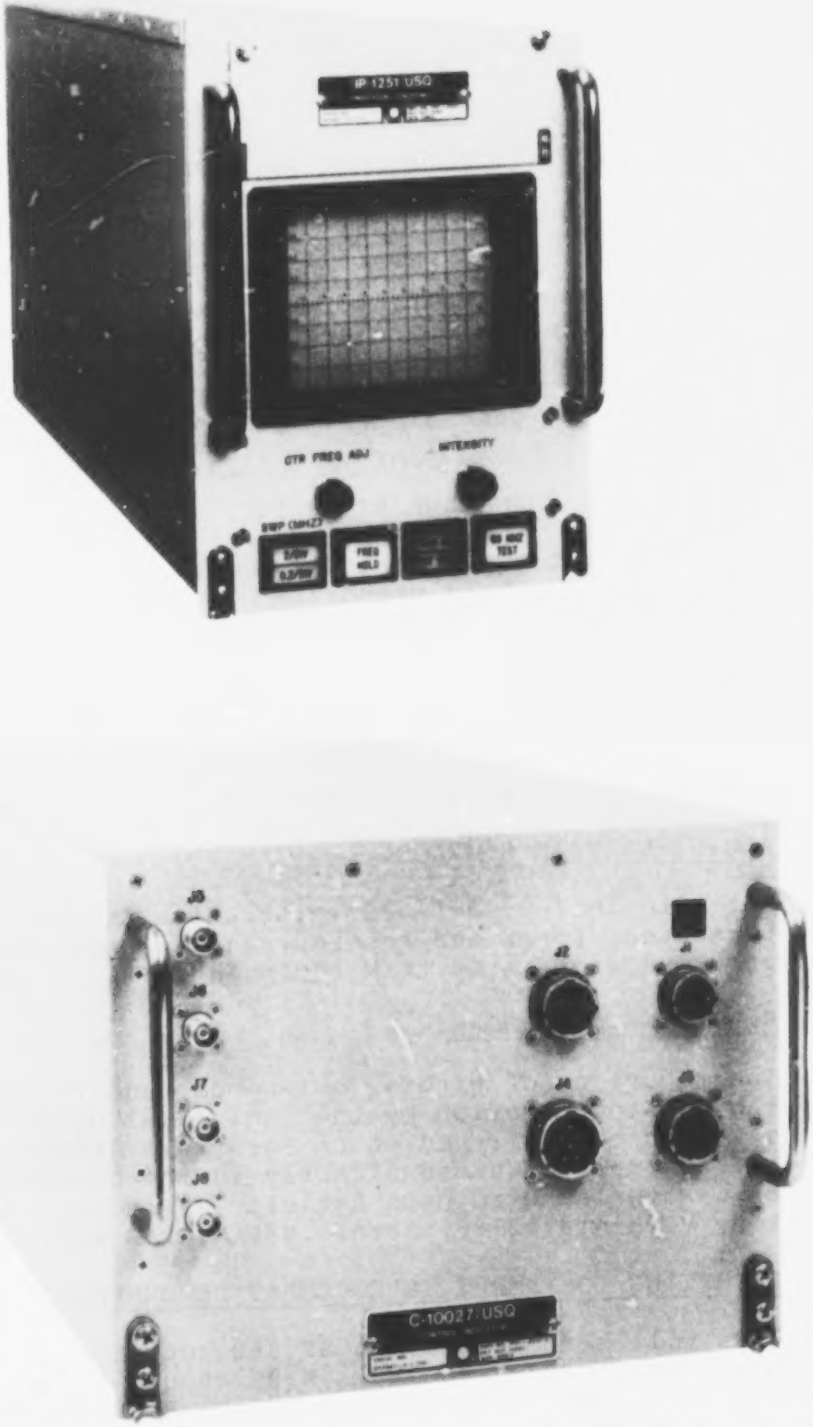


Figure 1-1. Panoramic Indicator IP-1251A/USQ and Indicator Control C-10027/USQ

Section II. DESCRIPTION AND DATA

1-7. PURPOSE AND USE.

The panoramic indicator and indicator control function together as a spectrum display unit (SDU) to receive and display a band of frequencies about a center frequency commanded by a binary coded decimal (BCD) code input. Figure 1-2 is an interconnect diagram of the two units.

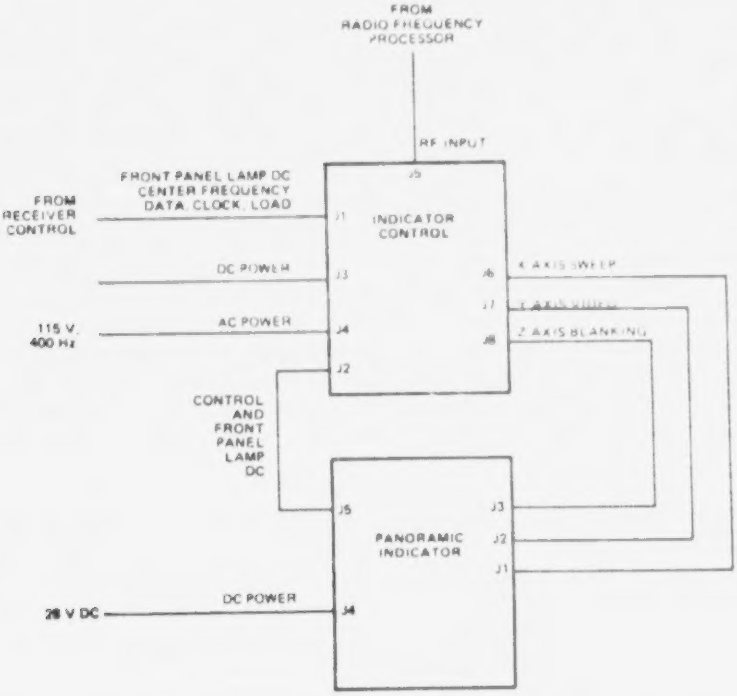


Figure 1-2. Panoramic Indicator and Indicator Control Interconnect Diagram

1-7.1. Panoramic Indicator. The panoramic indicator is an oscilloscope display that displays the frequency spectrum swept by the indicator control. The vertical scale of the cathode-ray tube (CRT) graticule is calibrated in decibels starting at the bottom graticule line. The horizontal scale covers ±1 MHz or ±10 MHz from the center frequency, depending upon the sweep mode selected, referenced to the center vertical graticule line. Focus, astigmatism, intensity, and horizontal and vertical gain and position may be adjusted by the operator. In addition, the controls of the indicator control are located on the panoramic indicator for proximity to the CRT display and to permit remote installation of the indicator control.

1-7.2. Indicator Control. The indicator control contains a complete superheterodyne receiver with a frequency range of 20 MHz to 150 MHz, which scans a sector ±10 MHz or ±1 MHz about a commanded center frequency for display by the panoramic indicator. The signal is processed logarithmically to permit the vertical scale of the panoramic indicator to be calibrated in decibels. The detected signal is first digitized and stored in a random-access memory (RAM) synchronously with receiver scan. The stored signal, which is updated with every scan, is concurrently read out for display at a rate sufficiently fast to prevent flicker. In addition to the Y-axis video signal, the indicator control provides X-axis sweep, Z-axis blanking, and built-in test equipment (BITE) signals to the panoramic indicator. Except for the center-frequency commands received from another system unit, the indicator control is operated from the control panel on the panoramic indicator. Functions controlled from the front panel of the panoramic indicator are 60-MHz test, center-frequency hold, frequency marker enable, sweep width selection, and center frequency position.

1-8. DESCRIPTION

1-8.1. Panoramic Indicator. The panoramic indicator consists of a case containing a CRT, two electronic components assemblies (ECAs), power supply modules, three circuit card assemblies (CCAs), two regulator pass transistors, a voltage-limiter diode, twist coil and CRT adjust potentiometers, and primary dc power line filters. The rear panel mounts three coaxial connectors for receiving X-, Y-, and Z-axis signal inputs, a connector for receiving +28-V dc primary power, and a multipin indicator control interface connector. Power and input/output connections are made at the indicator rear panel (see table 1-1).

1-8.2. Indicator Control. The indicator control consists of an air transport regulation (ATR) type case containing seven CCAs and eight modular assemblies. The CCAs plug into receptacles on the main chassis located toward the front of the ATR case, and are enclosed by an electromagnetic interference (EMI) shield. Seven CCAs are mounted on the main chassis directly behind the EMI enclosure by hold-down screws that pass through the main chassis. The remaining modular assembly is mounted by hold-down screws on the underside of the ATR case top cover. Power and signal connections to and from the modular assemblies are made by means of multipin and coaxial connectors and cables (see table 1-2).

Table 1-1. Panoramic Indicator Power and Signal Connections

Origin		
Connector Ref Des	Pin	Functions/Remarks
J1	TNC	X-Axis
J2	TNC	Y-Axis
J3	TNC	Z-Axis
J4	A	+24 V
J4	B	+24 V RETURN
J5	1	SPARE
J5	2	SPARE
J5	3	SPARE
J5	4	SPARE
J5	5	SPARE
J5	6	SPARE
J5	7	SPARE
J5	8	SPARE
J5	9	SPARE
J5	10	SPARE
J5	11	SPARE
J5	12	SPARE
J5	13	SPARE
J5	14	SPARE
J5	15	SPARE
J5	16	SPARE
J5	17	SPARE
J5	18	SPARE
J5	19	SPARE
J5	20	LAMP DRIVE (20-28 VDC)
J5	21	LAMP RTN
J5	22	SWEEP WIDTH
J5	23	FREQ HOLD
J5	24	60 MHZ TEST
J5	25	GND
J5	26	+5 VDC
J5	27	RF TEST GENERATOR
J5	28	CIRCUIT TEST
J5	30	CENTER FREQ ADJ 1
J5	31	CENTER FREQ ADJ 2
J5	32	CENTER FREQ ADJ 3
J5	33	SPARE
J5	34	SHD GRN

Table 1-2. Indicator Control Power and Signal Connections

Origin		
Connector Ref Des	Pin	Functions/Remarks
J1	1	SPARE
J1	2	SPARE
J1	3	SPARE
J1	4	SPARE
J1	5	SPARE
J1	6	SPARE
J1	7	SPARE
J1	8	SPARE
J1	9	SPARE
J1	10	SPARE
J1	11	DATA
J1	12	DATA RTN
J1	13	CLOCK
J1	14	CLOCK RTN
J1	15	LOAD
J1	16	LOAD RTN
J1	17	LAMP CONTROL
J1	18	LAMP RTN
J1	22	SHIELD GND
J2	1	SPARE
J2	2	SPARE
J2	3	SPARE
J2	4	SPARE
J2	5	SPARE
J2	6	SPARE
J2	7	SPARE
J2	8	SPARE
J2	9	SPARE
J2	10	SPARE
J2	11	SPARE
J2	12	SPARE
J2	13	SPARE
J2	14	SPARE
J2	15	SPARE
J2	16	SPARE
J2	17	SPARE
J2	18	SPARE
J2	19	SPARE
J2	20	LAMP CONTROL
J2	21	LAMP RTN
J2	22	SWEEP WIDTH
J2	23	FREQ HOLD
J2	24	60 MHz TEST
J2	25	GND

Table 1-2. Indicator Control Power and Signal Connections - Continued

Origin		
Connector Ref Des	Pin	Functions/Remarks
J2	26	+5 VDC
J2	27	FREQ MARKER
J2	28	CKT TEST LAMP
J2	30	CENTER ADJ 1
J2	31	CENTER ADJ 2
J2	32	CENTER ADJ 3
J2	35	SHIELD GND
J3	A	SPARE
J3	B	SPARE
J3	C	SPARE
J3	D	SPARE
J3	E	SPARE
J3	F	SPARE
J3	G	SPARE
J3	H	+5 VDC
J3	J	+5 VDC RTN
J3	K	+15 VDC
J3	L	+15 VDC RTN
J3	M	-15 VDC
J3	N	-15 VDC RTN
J3	P	+36 VDC
J3	R	+36 VDC RTN
J3	S	SPARE
J3	T	SPARE
J3	U	SHLD GND
J4	A	115 VAC 01
J4	B	SPARE
J4	C	SPARE
J4	D	NEUT
J4	E	INTERLOCK
J4	F	INTERLOCK
J4	G	SPARE
J4	H	CHASSIS GND
J5	BNC	RF INPUT
J6	TNC	X-AXIS
J7	TNC	Y-AXIS
J8	TNC	Z-AXIS

1-9. TABULATED DATA

The following composite specification applies to the panormaic indicator and the indicator control operating together as an SDU.

Inputs:

RF	20 to 150 MHz, 50 unbalanced.
Center frequency command	Serial bcd center frequency tuning word, accompanied by clock and load commands.
DC power	+36 V dc ±1.8 V dc at 15 mA, +15 V dc ± 0.75 V dc at 0.6 A, -15 V dc ± 0.75 V dc at 0.6 A, +5 V dc ±0.25 V dc at 2.3 A, +28 V dc ±1.4 V dc at 1.3 A.
AC power	115 V ac ±11.5 V, 400 Hz (± 57 Hz)
Spectrum display	Digitally refreshed CRT display of 20-MHz or 2-MHz band about selected center frequency. Includes 2-MHz or 0.2-MHz marker pickets. Vertical scale calibrated in decibels.

Performance:

Tuning range	20 to 150 MHz.
Tuning mode	Automatic sweep ±10 MHz or ±1 MHz about selected center frequency.
Center frequency tuning increment	10-kHz steps.
Preselection	Preselector automatically tuned and bandswitched.
IF bandwidth	100 kHz in wide sweep mode; 15 kHz in narrow sweep mode.
IF channel	Logarithmic.
Detection mode	Amplitude modulation.

Minimum discernible signal	Wide sweep: -112 dBm, typical. Narrow sweep: -115 dBm, typical, -113 dBm worst case.
Maximum signal strength	-35 dBm before hard limiting.
Electromagnetic interference	< -73 dBm between 10 kHz and 3 GHz with frequency markers deactivated. Meets requirements of MIL-STD-461 for generation of and susceptibility to radiated and conducted interference.
Resolution	1000 channels horizontal x 256 words vertical (1024 x 8 memory).
Scan rate	Write: 2 Hz, nominal; Read: 40 Hz, nominal.
Tuning speed	0.5 ms required to update to new frequency setting.
Center frequency adjust range	> 2 divisions, plus and minus.
Center frequency accuracy	< 0.3 division wide mode, 1 division narrow mode.
Sweep linearity	< 0.3 division.
Frequency marker accuracy	< 200 kHz.
Band change sweep overlap	< 0.3 division (wide mode).

Environmental specifications:

Temperature	-40° to +55° C (-40° to 133°F)
Altitude	0 to 40,000 feet (0 to 122 km)
Humidity	0 to 98%.

Physical characteristics:

Height	Panoramic indicator: 10.6 inches (27 cm); Indicator control: 7.8 inches (20 cm).

Width	Panoramic indicator: 7.6 inches (19.3 cm); Indicator control: 10.2 inches (26 cm).
Depth	Panoramic indicator: 19.7 inches (50 cm); Indicator control: 19.7 inches (50 cm).
Weight	Panoramic indicator: 25 pounds (11.4 kg); Indicator control: 29 pounds (13.2 kg).
Cooling	Free air.

CHAPTER 2

FUNCTIONING OF EQUIPMENT

2-1. SCOPE.

The chapter provides theory of operation for the panoramic indicator and indicator control on simplified block diagram, detailed block diagram, and detailed schematic diagram levels. The purpose of this chapter is to explain the circuit operation of the panoramic indicator and indicator control to intermediate support personnel.

Section I. FUNCTIONAL DESCRIPTION

2-2. GENERAL.

2-2.1. Panoramic Indicator. The panoramic indicator is a CRT display unit containing a CRT, X-axis amplifier, Y-axis amplifier, Z-axis blanking circuit, self-test signal generator, dc to dc converter, and CRT focus, intensity, and astigmatism control circuitry. The self-test generator provides standardized signals to the X-, Y-, and Z-axis circuits when the TEST pushbutton on the front panel is pressed. This allows the operator to determine if the panoramic indicator is operating properly, and if not, which of the channels is defective. Front panel gain and position potentiometers control the X- and Y-axis amplifier output offsets and signal amplitudes.

2-2.2. Indicator Control. (See figure 2-1.) The indicator control contains a complete superheterodyne receiver that scans a sector ±10 MHz or ± 1 MHz about a center frequency in the 20-MHz to 150-MHz range, for display by the panoramic indicator. The RF oscillator covers the tuning range in seven 20-MHz wide bands. The front end (preselectors and local oscillators) covers the same range in four bands. This requires midsweep band change functions if the wide (±10 MHz) sweep mode is selected. One-MHz overlap at both ends of each band eliminates the need for band change while in the narrow sweep mode. The video signal is logarithmically amplified and linearly detected to permit the vertical scale of the panoramic indicator to be calibrated in decibels. The detected video signal is first digitized and then stored in an 8-bit, 1000-word RAM. Any of 256 digitized video levels can be stored at each address of the memory. The stored signal, which is updated at every scan, is read out for display at a rate sufficiently rapid to prevent flicker.

An analog ramp signal derived from the binary RAM read address is applied to the panoramic indicator as the X-axis sweep signal. This and the highly linear tuning characteristics of the receiver ensure that the horizontal position of the sweep corresponds closely to the RF frequency of the signal displayed.

Except for the center-frequency commands received from the receiver control, the indicator control is operated from the control panel on the panoramic indicator. Functions controlled from the front panel controls on the panoramic indicator include 60-MHz test, center-frequency hold, frequency markers enable (comb generator), sweep width selection, and center-frequency position. When the frequency markers are activated, an output from a BITE circuit lights a lamp on the panoramic indicator if normal operation is indicated. The markers may be used during normal signal monitoring to ascertain the frequencies on either side of center. However, for test purposes, the 60-MHz test mode can also be activated to ensure that the test encompasses most of the circuitry in the indicator control. In the 60-MHz test mode, a 60-MHz picket is activated and the receiver is automatically tuned to the optimum test frequency of 60MHz, irrespective of the center-frequency command from the receiver control.

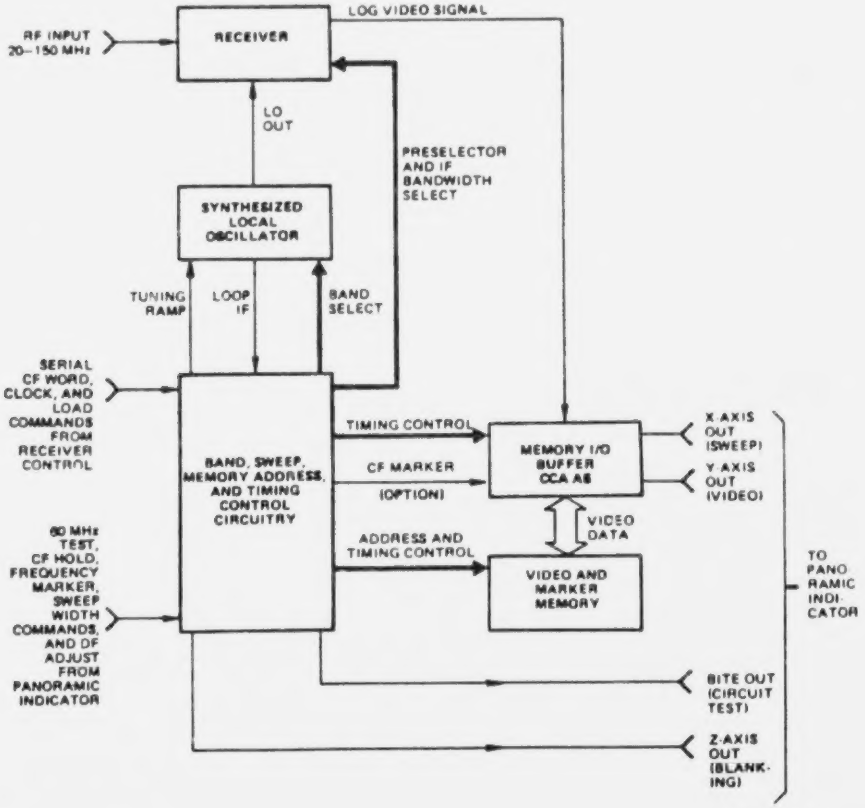

RF INPUT 20–150 MHz
RECEIVER
LOG VIDEO SIGNAL
LO OUT
PRESELECTOR AND IF BANDWIDTH SELECT
SYNTHESIZED LOCAL OSCILLATOR
TUNING RAMP
LOOP IF
BAND SELECT
SERIAL CF WORD, CLOCK, AND LOAD COMMANDS FROM RECEIVER CONTROL
BAND, SWEEP, MEMORY ADDRESS, AND TIMING CONTROL CIRCUITRY
TIMING CONTROL
CF MARKER (OPTION)
MEMORY I/O BUFFER CCA A6
X-AXIS OUT (SWEEP)
Y-AXIS OUT (VIDEO)
VIDEO DATA
ADDRESS AND TIMING CONTROL
VIDEO AND MARKER MEMORY
60 MHz TEST, CF HOLD, FREQUENCY MARKER, SWEEP WIDTH COMMANDS, AND DF ADJUST FROM PANORAMIC INDICATOR
TO PANORAMIC INDICATOR
BITE OUT (CIRCUIT TEST)
Z-AXIS OUT (BLANKING)

Figure 2-1. Indicator Control Simplified Functional Block Diagram

2-3. PANORAMIC INDICATOR FUNCTIONAL DESCRIPTION.

(See figure FO-1.) This paragraph provides a detailed functional description of the panoramic indicator with reference to the detailed block diagram, figure FO-1. This unit functionally consists of horizontal and vertical amplifiers, a Z-axis blanking amplifier, a self-test signal generator, dc to dc converter, CRT control circuitry, and panoramic indicator front panel controls.

2-3.1. Horizontal and Vertical Amplifiers (X-Axis Amplifier CCA A3 and Y-Axis Amplifier CCA A2). The horizontal and vertical amplifiers are identical to one another except that the horizontal amplifier has more gain. Analog switches at the inputs to these amplifiers select X-axis and Y-axis input signals for amplification and display if the TEST pushbutton is not pressed. When the TEST pushbutton is pressed, the self-test signal is selected. The differential outputs of the amplifiers drive the horizontal and vertical deflection plates of the CRT. Both amplifiers are internally offset so that the zero-signal position of the CRT beam is at the lower left corner of the graticule. The horizontal amplifier normally receives a sawtooth signal that sweeps the CRT beam from left to right, while the vertical amplifier receives the analog frequency spectrum signal for display. If the TEST pushbutton is pressed, the self-test sawtooth signal sweeps the beam from the lower left corner to the upper right corner of the graticule. Front panel gain and position controls permit amplitude and position adjustment of the signal displayed.

2-3.2. Z-Axis Blanking Amplifier (P/O CCA A1). The Z-axis blanking amplifier receives a bilevel blanking signal that is normally coordinated with the horizontal sweep signal. The output from the Z-axis blanking amplifier is applied to the CRT blanking grid. When the blanking signal is high, the beam appears on the CRT, and when the blanking signal is low, the beam is interrupted. The input circuit of the blanking amplifier selects between a self-test blanking signal and the external signal received on connector J3. The self-test blanking signal breaks the diagonal trace into four equal intensified segments and an equal number of blanked segments.

2-3.3. Self-Test Signal Generator (P/O CCA A1). The self-test signal generator produces a ramp signal, applied in common to the horizontal and vertical deflection amplifiers, and a blanking signal, applied to the Z-axis blanking amplifier. The self-test generator is enabled and the self-test signals are accepted by the X-, Y-, and Z-axis circuits when the TEST pushbutton is pressed. The ramp signal causes the CRT beam to sweep diagonally, and the blanking signal breaks the diagonal trace into four equal segments.

2-3.4. Low Voltage and High Voltage Power Supplies. The +28 V dc input power is fused, filtered, and applied to a low voltage regulator (P/O CCA A1) to produce a regulated 16.5 V dc for use in the dc-dc converter U1. The high voltage power supply is a dc to dc converter that converts the 16.5 V dc supply to high voltages, 1650 V dc, -1600 V dc and the 6 V dc CRT filament voltage offset to the -1600 V dc cathode high voltage. The low voltage power supply converts the 16.5 V dc supply to the low voltages 208 V dc and ±10 V dc. The low voltage regulator (P/O CCA A1) converts the ±10 V dc to a regulated ±6 V dc. The high voltages are maintained sufficiently constant by regulating the 16.5 V dc input voltage.

2-3.5. CRT Control Circuitry. The CRT control circuitry consists of voltage dividers that permit adjustment of astigmatism, focus, and intensity of the CRT. The intensity control circuit consists of a high voltage divider potentiometer combined with a high voltage transistor divider. The transistor divider is controlled by the remote intensity control potentiometer located on the front panel near the controls of the indicator control. The shafts of the high voltage control potentiometers are insulated to protect the operator and prevent short circuits. The remote intensity potentiometer is at low voltage and does not require special insulation.

2-3.6. Indicator Control Controls. The controls of the indicator control consist of a potentiometer and four illuminating pushbuttons located on the lower half of the front panel of the panoramic indicator. These controls are connected to the indicator control through connector J5 and control the function displayed on the CRT by selecting and adjusting indicator control parameters and operating modes.

2-4. INDICATOR CONTROL FUNCTIONAL DESCRIPTION.

(See figure FO-2.) This paragraph provides a functional description of the indicator control with reference to the block diagram, figure FO-2. For purposes of this description, the indicator control is divided into four functional sections: the receiver section, synthesized local oscillator section, memory section, and control section.

2-4.1. Receiver Section. The receiver section compromises RF preselector CCA A8A1, IF mixer CCA A8A3, IF amplifier ECA A9, logarithmic amplifier ECA A10, and RF test generator ECA A11. The receiver section converts the RF input signal at the frequency to which it is tuned to a logarithmic video signal for application to the panoramic indicator via the memory section.

2-4.1.1. RF Preselector CCA A8A1. The RF preselector assures good dynamic range and noise performance of the receiver by eliminating all but a band about the tuned center frequency. The 20-MHz to 150-MHz receiver frequency range is covered by the preselector in four bands, as selected by the control section in conjunction with local oscillator band selection. To eliminate the need for a wide preselector bandwidth, the preselector is swept by the local oscillator tuning voltage so that it tracks the receiver tuned frequency.

2-4.1.2. IF Mixer CCA A8A3. The first IF mixer mixes the bandlimited RF signal from the preselector with the local oscillator output to produce a 30-MHz or 10.7-MHz IF signal. The IF produced depends on the local oscillator band selected by the control section. Two IFs are employed to permit effective rejection of unwanted mixer output components at the higher frequencies. The IF is 10.7 MHz for local oscillator bands 1 and 2 and 30 MHz for bands 3 and 4.

2-4.1.3. IF Amplifier ECA A9. IF amplifier ECA A9, in addition to amplifying the IF signal from the first mixer, determines the receive resolution by setting the bandwidth. Also, if the IF from the first mixer is 30 MHz, the IF amplifier down-converts it to 10.7 MHz before bandwidth filtering. Bandwidth selection is a function of the sweep width, and is consistent with the horizontal resolution limitations imposed by the 1000-channel memory.

2-4.1.4. Logarithmic Amplifier ECA A10. Logarithmic amplifier ECA A10 logarithmically amplifies the band-limited 10.7-MHz IF signal from the IF amplifier and linearly detects this signal to produce a logarithmic video signal that will be digitized and stored in memory.

2-4.1.5. RF test generator ECA A11. The RF test generator circuit on ECA A11 is energized only when the frequency marker button on the panoramic indicator is pressed. When energized, the RF test generator produces a comb function that is applied to the input of the preselector. The comb function is a train of pickets rich in harmonics of the fundamental frequency. The sweep width switch on the panoramic indicator selects a fundamental of 2 MHz in the ±10-MHz position and 0.2 MHz in the ±1-MHz position. Therefore, in the frequency marker mode and when sweeping ±10 MHz, pickets appear at 2-MHz intervals on the CRT display. Similarly, when sweeping ±1 MHz, pickets appear at 0.2-MHz intervals.

A 60-MHz crystal oscillator is activated if the 60 MHz TEST pushbutton on the panoramic indicator is pressed. The 60-MHz signal, like the RF test generator output, is applied to the input of the preselector to appear as a picket on the CRT display.

2-4.2. Synthesized Local Oscillator Section. The local oscillator section comprises voltage controlled local oscillator CCA A8A2, frequency converter ECA A13, frequency discriminator CCA A14A1, loop amplifier CCA A14A2, and RF oscillator ECA A12, connected in a frequency-locked loop synthesizer configuration. The local oscillator section generates a signal 10.7 MHz or 30 MHz above the required receiver tuned frequency, which is mixed with the RF in the first mixer to produce a 10.7-MHz or 30-MHz IF signal. The LO output is also converted to a loop IF frequency, which in turn is converted to an equivalent dc for comparison with the tuning ramp received from the control section. The comparison results in a voltage that tunes the local oscillator (and the preselector) to a frequency proportional to the tuning ramp voltage. In addition to the tuning ramp input, the local oscillator section receives band-select and preset guiding voltage codes from the control section. When the frequency of the local oscillator is abruptly changed (with or without changing bands), a dead time is provided. During the first portion of the dead time, the guiding voltage presets the loop to a point close to the lock-in frequency. This permits the loop to quickly lock to the proper frequency without excessive delay during the second portion of the dead time.

2-4.2.1. Local Oscillator CCA A8A2. The local oscillator assembly covers the required frequency ranges (10.7 or 30 MHz above receiver tuned frequency) in four bands. These are listed in the table on the functional block diagram (see figure FO-2). Band selection is made by a binary code received from the control section. The binary code is converted to BCD format for selecting corresponding preselector bands as well as LO bands. It follows that the preselector and local oscillator bands change simultaneously, and these switching points coincide with the RF oscillator switching points as described below.

2-4.2.2 Frequency Converter ECA A13. Frequency converter ECA A13 translates the local oscillator output frequency to a corresponding loop IF frequency in the 23.75-kHz to 51.25-kHz range. Conversion is achieved by mixing the LO output with one or two outputs from the RF oscillator. For RF oscillator bands 1 and 2, conversion is carried out in two steps. For the remaining five bands, conversion is carried out in one step, as controlled by the RF oscillator output frequencies and the most significant bit (MSB) of the band-select code from the control section. The sweeping LOOP IF signal from the frequency converter is applied to the discriminator.

2-4.2.3. Frequency Discriminator CCA A14A1. The discriminator converts the LOOP IF signal to a dc voltage linearly proportional to the frequency.

2-4.2.4. Loop Amplifier CCA A14A2. The loop amplifier compares the dc voltage from the frequency discriminator with the tuning ramp voltage from the control section by an operational amplifier summing network referenced to signal ground. The loop amplifier produces an output voltage that maintains the local oscillator at the frequency that renders the discriminator output dc equal to the tuning ramp voltage, as necessary to maintain the summing junction requirement of 0 V. Appropriate lead/lag active filters in the loop amplifier output minimize tracking error of the local oscillator with the tuning ramp.

2-4.2.5. RF Oscillator ECA A12. RF oscillator ECA A12 produces seven frequencies or pairs of frequencies, each corresponding to a 20-MHz segment of the 20-MHz to 150-MHz receiver tuned frequency range. When in the wide sweep mode, the receiver must sweep a 20-MHz sector that in most cases does not coincide with only one RF oscillator band segment. Therefore, to sweep a 20-MHz sector, the band must be changed during midscan. Upon each band change and at the end of a sweep, a dead time is provided to permit the local oscillator to stabilize at the new loop parameters. To reduce the loop lock-in time, the lead/lag active filters and the output tuning voltage are preset, when the band is changed, to values near the lock-in point as determined by the guiding voltage code and enable strobe received from the control section. Upon termination of the guiding voltage enable strobe, the loop quickly locks in to the new parameters so that the sweep may resume without error.

2-4.3. Memory Section. The memory section comprises memory I/O buffer CCA A5 and memory CCA A6.

2-4.3.1 Memory I/O Buffer CCA A5. Memory I/O buffer CCA A5 converts the logarithmic video signal from the receiver section to digital form suitable for storage in the memory, converts the digitized video signal read from the memory to an analog video signal for application to the vertical input of the panoramic indicator, and converts the memory read address signal to an analog sawtooth signal for application to the horizontal sweep input of the panoramic indicator. Center frequency position control is achieved by offsetting the X-axis sweep signal by means of a dc voltage from the CTR FREQ ADJ potentiometer on the panoramic indicator.

2-4.3.2. Memory CCA A6. The memory assembly contains a 256-level x 1000 word random-access video data memory, a 1-bit x 1000 word random access center frequency marker memory (not used in this application), and associated latches, multiplexers, and timing logic circuitry. The multiplexers alternately apply read and write address codes to the memories, so that storage and readout may be carried out concurrently through the use of read latches. The incrementing addresses independently scan the 1000 memory channels. The read address increments continuously at a 43.5-kHz rate, while the write address increments at a slower rate in step with receiver scan. The latches load the output of the addressed channel of the video memory after the memory read address is stabilized to prevent garbled video output data. Some logic functions are generated on the memory which functionally would more properly be associated with the control section. In particular, an analog-to-digital (A/D) conversion command is generated for application to the A/D converter (ADC) on the I/O buffer. This command permits one A/D conversion for each memory write address increment.

2-4.4. Control Section. The control section includes receiver sweep ECA A15, sweep address CCA A2, RC interface CCA A7, circuit clock CCA A1, memory address CCA A4, and timing controller CCA A3. This section controls receiver/local oscillator band selection, local oscillator sweep, memory addresss and timing, center frequency marker generation (not used in this application), and Z-axis blanking. It also contains a test circuit that provides an indication of proper functioning of the indicator control. The control inputs from the panoramic indicator interface via this section.

2-4.4.1. RC Interface CCA A7. Receiver control interface CCA A7 contains a shift register that receives the serial center-frequency data from the receiver control. The center-frequency data word is used in parallel form by the indicator control to determine appropriate preselector, RF oscillator, and local oscillator bands and band switching points, and also to determine the position on the CRT sweep of the center-frequency marker. A fixed 60-MHz command may be substituted for the center-frequency command by pressing the 60 MHz TEST pusbutton on the panoramic indicator or a current center-frequency may be held by pressing the FREQ HOLD pushbutton.

2-4.4.2. Sweep Address CCA A2 and Receiver Sweep ECA A15. The sweep address contains a binary counter that, in the wide sweep mode, is incremented by a 40-MHz clock from a starting point 10 MHz below center frequency as preset by the center-frequency code received from the receiver control interface and an inverted 10-MHz bit received from the timing controller. The sweeping binary counter output is applied to the receiver sweep, where it is converted to analog form for sweeping the local oscillator via the loop amplifier. At a predetermined count corresponding to the point where the band must be changed, a sector carry pulse is generated. The sector carry is applied to the timing controller, where it initiates the band change functions (including the necessary settling dead time) and resets the appropriate receiver control interface output to 0. After the dead time interval, the sweep address counter resumes counting from 0. At the end of the 20-MHz sweep sector, the count is terminated and a new cycle is initiated. The output of the receiver sweep in the wide sweep mode is therefore a ramp that starts at an intermediate point that tunes the receiver 10 MHz below center frequency, peaks and is reset to an initial starting point at a 20-MHz band change point, and continues upward until the end of the 20-MHz sweep sector. The cycle is repeated at a rate of approximately two per second.

In the narrow sweep mode, the sweep address counter is disabled and provides a fixed center-frequency output to the receiver sweep. The incrementing RAM write address from the memory address is converted to an analog ramp (that starts at a negative voltage and sweeps through 0 up to an equal positive voltage) by the receiver sweep, which is summed to a fixed voltage corresponding to the center frequency code received from the sweep address. The sum is an offset ramp that tunes the receiver from 1 MHz below center frequency to 1 MHz above center frequency. The local oscillator and receiver section bands overlap sufficiently to eliminate the need for band switching in cases where center frequency is near a band edge.

2-4.4.3. Memory Address CCA A4. Memory address CCA A4 contains the memory read and write address binary counters and a test circuit. The two counters are essentially identical except that the read address counter cycles 16 times faster than the write address counter. The write address counter counts in step with the sweep address counter, except that it starts counting from 0 at the beginning of a scan sector and is not reset in midscan when the sweep address counter is reset. The two counters scan the RAMs as discussed above in the description of the memory section. The RAM write address output is also converted by the receiver sweep to an analog ramp voltage that is used to sweep the receiver about center frequency when in the narrow sweep mode. Similarly, the read address is converted by the memory section to an analog X-axis sweep voltage. The test circuit is energized when the FREQ MKR button on the panoramic indicator is pressed. In this mode, the RF test generator in the receiver section is also energized, guaranteeing video output activity. The test circuit samples X-, Y-, Z-axis outputs and lights the CKT TEST lamp on the panoramic indicator if the signal activity on all three outputs reflects proper operation of the indicator control.

2-4.4.4. Timing Controller CCA A3. Timing controller CCA A3 coordinates the timing of the various assemblies with respect to sector scanning and band change, dead time delay, RF and local oscillator select, loop amplifier guiding voltage preset, and RAM read and write. Center-frequency marker width and blanking are not used in this application. In the wide sweep mode, the timing controller inverts the 10-MHz bit from the receiver control interface prior to application to the sweep address. This, in effect, subtracts 10 MHz from the center-frequency code so that sweep starts 10 MHz below center. In the narrow sweep mode, the 10-MHz bit is not inverted, so the fixed code applied to the receiver sweep corresponds to center frequency. The 20-, 40-, 80-, and 100-MHz center-frequency bits from the receiver control interface are decoded to provide band output codes to the receiver and local oscillator sections. Because it may be necessary to begin a scan in a band below that in which the center frequency falls or to end a scan in a band above that in which the center frequency falls, the band selection by the timing controller is coordinated with the status of the sweep address.

2-4.4.5. Circuit Clock CCA A1. This CCA contains a 4.096-MHz reference oscillator that produces a timing signal for use by CCAs A5 and A6.

Section II. DETAILED THEORY OF OPERATION

2-5. GENERAL.

This section provides detailed circuit theory for the CCAs, ECAs, and mainframe circuitry of the panoramic indicator and the CCAs and ECAs of the indicator control. A wiring diagram of the panoramic indicator mainframe circuitry is shown in figure FO-3, and schematic diagrams for the panoramic indicator CCAs and ECAs are in figures FO-4 thru FO-7. Schematic diagrams for the indicator control are shown in figures FO-8 thru FO-27.

2-6. PANORAMIC INDICATOR DETAILED THEORY.

2-6.1. Mainframe Circuitry. (See figure FO-3.) The primary +28 V dc input power received via connector J4 is first fused by F1 and filtered by EMI filters FL1 and FL2, then regulated to +18 V dc by pass transistor Q1 (paragraph 2-6.4.1). CR1 is a 50-W reference diode connected across the +18 V dc line to protect the internal circuitry in case of a short circuit of pass transistor Q1. The increased current through CR1 will cause fuse F1 to open and remove all power from the panoramic indicator. The regulated +16.5 V dc supply voltage is applied to twist coil adjustment potentiometer R3 and high voltage power supply module CCA A4A3. The twist coil adjustment is one-time setting to align the horizontal trace of the CRT with the graticule. This is not normally readjusted unless the CRT is replaced. Resistors R1 and R2, connected across the base-emitter junctions of regulator pass transistors Q1 and Q2, ensure that Q1 and Q2 cut off and provide no voltage outputs should CCA A1 be removed from its plug-in socket.

Other circuitry on the mainframe is CRT-adjust potentiometer R9, along with R8 and R10, and astigmatism-adjust potentiometer R12, along with R11 and R13. These are simple voltage dividers from the +208 V dc supply to ground. The astigmatism adjustment is a front panel control and is adjusted as required. The CRT adjustment, like the twist coil adjustment, is a one-time adjustment; readjustment is usually not necessary unless the CRT is replaced. The test, position, and gain controls are front panel controls described in paragraphs 2-6.4 through 2-6.6.

Additional controls not shown in figure FO-3 are the CRT remote INTENSITY control potentiometer, FREQ HOLD, FREQ MKR, and 60 MHZ TEST pushbuttons, and the CTR FREQ ADJ potentiometer. Wiring information for panoramic indicator front panel controls is included in chapter 5. No additional circuitry is associated with the controls of the indicator control.

2-6.2 DC-DC Converter 1. (See figures FO-7, FO-8 and FO-9.) The dc-dc converter U1 converts the +16.5 V dc supply voltage to +1650 V dc and -1600 V dc for use in the CRT control system, to +208 V dc for the horizontal and vertical amplifiers and to +10 V dc and -10 V dc used by the regulators on CCA A1 for generation of +6 V dc and -6 V dc. The converter also generates a 6 V dc floating at -1600 V dc for operating the CRT filament. The converter is potted because of the high voltage present.

The high voltage power supply consists of two circuits with a multiwinding transformer having an oscillator driving the primaries and rectifier circuits connected to the secondaries.

The +16.5 V dc input is first dropped to 12 V dc. The 1650 V dc output at pin 10 is derived from oscillator Q4 regulator U3 and transformer T1. A voltage divider network consisting of resistors R27, R28, and R56 through R59 provides a low voltage for testing at pin 8 and a feedback voltage for comparison to the reference voltage at U2 controlling regulator U3. In a similar fashion Q4, regulator U4 and transformer T3 generate the -1600 V dc output at pin 11. The oscillator Q4 output at pin 26 of the low voltage board is applied to transformer T2 which provides the +10 V dc and -10 V dc outputs after rectification by CR4 and CR13 respectively. A third output of T2 is transmitted to the high voltage board for rectification to the 6 V dc filament power biased by the -1600 V dc output. The oscillator U1A, U1B, and Q1 through Q3 drives the primary of T4. Rectification of the T4 output by CR46 provides the 208 V dc output.

2-6.3 CRT Control CCA A4A2. (See figure FO-6.) CRT control CCA A4A2 provides control of high voltage supplied to the CRT control grid, cathode, and focusing anode. Intensity control R15 and focus control R17 are located behind the hinged cover on the front panel of the panoramic indicator. The operational intensity control (labeled REMOTE INT on figure F0-6) is accessible on the panoramic indicator hinged cover.

Adjustment of focus control R17 changes the negative high voltage applied to the CRT focusing anode (via pin 7 of the CRT control module), providing focusing of the CRT trace.

The intensity of the trace displayed on the CRT is determined by the difference in potential between the CRT control grid and cathode; however, the control grid voltage is always negative with respect to the cathode. Reducing the difference between the control grid and cathode voltages (by making the control grid voltage less negative or the cathode voltage more negative) increases the CRT trace intensity.

Clockwise rotation of intensity control R15 increases the negative voltage applied to the CRT cathode via pin 8 of the CRT control module, thereby increasing trace intensity.

The operational intensity control (see REMOTE INT on figure FO-6) controls intensity of the voltage applied to the CRT control grid via pin 5 of CCA A4A2. The control grid voltage is determined by the voltage at the collector of Q3. A zener diode (CR1) provides about 100 V across the series combination of R9, Q3, and R12. With Q3 shut off, the negative control grid voltage increases to a value approaching that at the junction of R8 and CR1. As current through Q3 increases toward saturation, the negative voltage applied to the control grid decreases to a value approaching that at the junction of R12 and R14. Trace intensity therefore increases when Q3 current increases and decreases when Q3 current decreases.

The remote intensity control setting determines the Q3 base current and therefore the Q3 collector current. A square wave is provided to the base of Q2 from the pin 3 output of U1. As Q2 is driven between shut off and saturation, a square wave is generated at the Q2 collector. The amplitude of this square wave is determined by the voltage at the Q1 emitter, which is determined by the Q1 base voltage. Setting the remote intensity control fully clockwise provides the maximum amplitude square wave (about 5 V p-p) and the maximum trace intensity. The square wave at the collector of Q2 is full-wave rectified by CR2, CR3, and C9. A large rectified voltage results in a large Q3 base-emitter current and a less negative CRT control grid voltage.

2-6.4. Z-Axis Amplifier, Test and Regulator CCA A1. (See figure FO-4.) CCA A1 contains three voltage regulators, a self-test signal generator, and A Z-axis blanking circuit.

2-6.4.1. +16.5 V DC Regulator. The main +28 V dc power input is applied to pin 8 of the circuit board and the emitter of main chassis-mounted pass transistor Q1. The power for regulator IC U6 is +12 V dc applied to pin 8. This power is obtained from the +28 V dc input by dropping resistor R22 and regulator diode CR10. The internal +7 V dc reference appearing at pin 4 of U6 is applied to the noninverting regulator input pin 3 through R23. The regulated +18 V dc output of output pass transistor Q1 is returned via pin 9 to sense divider R25-R26. The values of R25 and R26 are such that the voltage returned to the inverting input (pin 2) of regulator U6 matches the noninverting reference of +7 V dc. Regulator U6 has an internal regulator transistor, the emitter of which is connected to pin 6, and is biased by reference diode CR11 at +7.5 V dc. The collector of this internal transistor is connected to pin 7. Pin 7 is connected to the mainpass transistor through 9.1 V offset reference diode CR14. The nominal voltages which appear are +18 V dc at pin 7 of U6 and +27 V dc at the base of Q1. The negative feedback arrangement of this circuit produces regulation by maintaining the feedback voltage applied to the inverting input of U6 (pin 2) equal to the reference voltage applied to the noninverting input (pin 3). C1 connected to pin 9 of U6 is a compensating capacitor that prevents oscillation of the regulator circuit. R24 in the feedback divider circuit is selected for precise +16.5 V dc regulator output.

2-6.4.2 +6 V DC Regulator. Like the 16.5 V dc regulator, the +6 V dc regulator employs a regulator IC, U7, and a chassis-mounted series-pass transistor, Q2. The input power to this regulator circuit is +10 V dc from the dc-dc converter. This +10 V dc input is applied to the emitter of Q2 and power input pin 8 of U7 via CCA A1 pin 4. The +7 V dc reference appearing at pin 4 of U7 is divided down to +2.9 V dc by R27 and R28. This voltage is applied to the noninverting input of U7, pin 3. The emitter of output transistor in U7 is biased at 3.6 V dc by reference diode CR12, and the collector of this transistor (pin 7 of U7) is connected directly to the base of chassis-mounted pass transistor Q2. Feedback from the regulator provided by divider R29 and R31 is applied to the inverting input of U7, pin 2. R30 is selected for precise output voltage. C12 connected to pin 9 of U7 prevents oscillation of the circuit. C13 is a bypass across the +6 V dc output that reduces the impedance at high frequencies.

2-6.4.3 -6 V DC Regulator. The -6 V dc regulator comprises regulator IC U8 and emitter output transistor Q6. The +10 V dc input for U8 and the collector of its internal transistor, pins 8 and 7, respectively, is obtained via CCA A1 pin 4 from the dc-dc converter. The -10 V dc input from the dc-dc converter is applied to the collector of output emitter/follower Q6. The ground reference of U8 (pin 5) is connected to the -6 V dc output. The reference voltage appearing at pin 4 of U8 is 7 V above the ground reference, and is therefore +1 V with respect to chassis ground. The 6 V dc output is divided with reference to the +1 V dc reference by R35 and R36. Values are chosen to bias pin 2, the inverting input, of U8 to a voltage point half way between the reference voltage and the -6 V dc output. If measured to ground, the voltage on pin 2 is -2.5 V dc. R33 is chosen to adjust the divide ratio for precise -6 V dc regulator output. The output from the emitter of the internal output transistor of U8 is offset 6.2 V dc by reference diode CR13 and applied to the base of output emitter follower Q6, thus completing the feedback loop. C14 is compensating capacitor that prevents oscillation of the circuit, and C15 is a bypass across the -6 V dc output that reduces the impedance at high frequencies.

2-6.4.4. Self-Test Signal Generator. The self-test generator comprises U3, U4, U2, Q5, and U5. U3 is a free-running oscillator that produces a train of pulses to pin 14 of U4. U4 is a 4-bit binary counter. Pins 2 and 3 are the reset inputs, pin 11 is the D output, pin 12 is the A output, and pin 14 is the clock (A) input. When the self-test switch is open, pullup resistor R13 holds the reset inputs

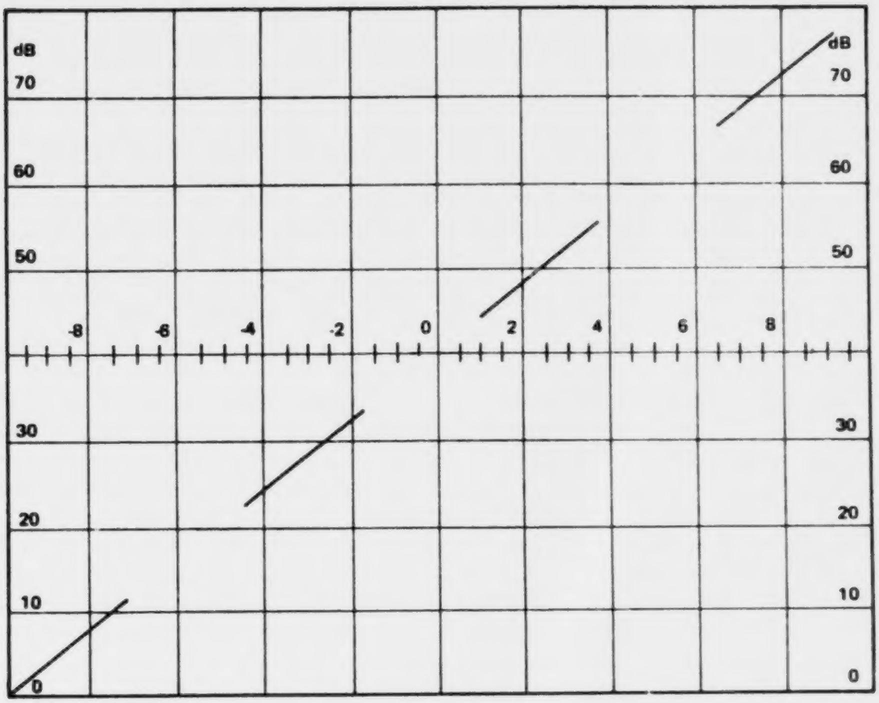


Figure 2-2. Self-Test Display

at logic 1, causing the A and D outputs to hold at logic 0. Logic 0 at the D output allows transistor Q5 to be cut off, charging C9 to approximately +6.6 V dc and setting the level at pin 3 of U5 to approximately 1 V. U5 is a voltage follower, and therefore the test signal output at CCA A1 pin 12 holds at +1 V dc. The 0 logic levels from pins 11 and 12 of U4 set up the logic gates in the Z-axis channel to permit the Z input information to be fed through to the CRT blanking plates.

When the TEST pushbutton is in a depressed position, pin 20 of the CCA is at logic 0. This logic 0 is inverted by NOR gate U2B, and the output is applied to NOR gate U1C, which prevents the Z-axis input signal from being applied to the Z-axis blanking circuit. The self-test logic 0 also enables U4, allowing the normal binary count to appear at pins 11 and 12. When the D output pin 11 is at logic 1, transistor Q5 turns on and discharges capacitor C9 to ground. This results in 0 V at pin 3 of U5 and at CCA A1 output pin 12. When the D output changes to a logic 0, Q5 is cut off and permits C9 to begin to charge through R18. Values have been chosen such that C9 charges to approximately 5 V during the interval that the D output of U4 is at logic 0, after which C9 is again discharged. The +5 V dc sawtooth waveform is divided to a 0 V to +0.8 V sawtooth by R19 and R20, and applied to CCA A1 output via voltage follower U5. The output waveform has a 50% off time; that is, the output will ramp from 0 V to +0.8 V and then return to 0 V and remain there for an equal time.

The square wave that appears at U4 pin 12 is eight times the frequency of the square wave at pin 11. These square wave pulses and the pin 11 D output of U4 are applied to NOR gate U2D. The gating action of the D output permits the A output pulses to be applied to the Z-axis blanking circuit during the interval the sawtooth ramp is being generated. When the sawtooth returns to 0 V, these pulses are inhibited. The ramp is applied to X-axis amplifier CCA A3 and Y-axis amplifier CCA A2. Therefore, the self-test signal appears on screen as a dashed line consisting of four brightened segments and an equal number of blanked segments extending from the lower left corner to the upper right corner as illustrated in figure 2-2.

2-6.4.5. Z-Axis Blanking Circuit. The Z-axis blanking circuit comprises U1, Q1 thru Q4, and associated circuitry. The normal Z-axis signal input is received on pin 23 of CCA A1. R1, CR1, CR2, and CR3 provide overvoltage and reserve voltage protection for TTL logic gate U1. R2 is pullup resistor for the Z input, which holds the Z-axis blanking circuit in the blanked state if no connection is made to the input. The four 2-input NOR gates of U1 are connected so that a signal of the same phase as the Z-axis input signal is applied to the base of Q1 and an inverted signal is applied to the base of Q3. When the Z input is at logic 1, the base of Q1 will be at logic 1 and therefore, Q1 will be in the saturated state. This will also saturate Q2 through resistor R5. The logic 0 at the base of Q3 cuts Q3 off. Therefore, the blanking output signal will be at the voltage provided by Q4, +110 V dc. When the Z input changes to a logic 0 state, Q1 and Q2 turn off and Q3 turns on. This causes the blanking output level to become approximately 0 V. C2 and C3 are speed-up capacitors that allow fast turn-off of Q1 and Q3. C4 is a speed-up capacitor that allows transistor Q2 to turn on quickly. However, when Q1 turns off, there is no energy source to cause Q2 to turn off rapidly. Therefore, C1, a small speed-up capacitor, has been added to apply pulses directly from the TTL system to the base of Q2. Q4 and CR6 convert +208 V dc to +110 V dc for use by the output stages. CR6 is a +110 V dc reference diode, R7 is a dropping resistor, and Q4 is an emitter-follower that provides low-impedance drive. C5 and C6 are +110 V dc supply filter capacitors. As the frequency of the Z-axis driving signal increases, the current drawn from the +110 V dc supply will increase due to the rapid charging and discharging of the capacitance of Q2, Q3, the output wiring, and the blanking plates of the CRT. To protect the output transistors, the current drain of the +110 V dc supply is limited by the inclusion of resistor R8 in the collector circuit of Q4. When Q4 reaches saturation, a further increase in blanking signal frequency will result in reduced amplitude of the output signal. This limit frequency is approximately 100 to 200 kHz.

2-6.5. Y-axis Amplifier CCA A2. (See figure FO-5.) The input circuit of Y-axis amplifier CCA A2 selects between the Y-axis signal input and the test signal input from CCA A1. The Y-axis signal is normally accepted when the TEST pushbutton is not in a depressed position. When the TEST pushbutton is pressed, the amplifier accepts the test signal input. Provisions for gain and position control are included, and an output stage provides for the necessary voltage swing to the vertical deflection plates of the CRT.

2-6.5.1 Input Switching Circuit. U1 is an analog switch that selects between the Y-axis signal input received on P1 pin 19 and the self-test signal input received on P1 pin 11. When the TEST pushbutton is in the normal (open) position, pin 10 of U1 is held high by a pullup resistor on CCA A1. This causes U1 to pass the Y-axis signal appearing on pin 5 of U1. A clamping network comprising CR1, CR2, R1, and R2 ensures that the signal swing never goes beyond ±6 V. The output of U1 from pin 3 is developed across R8 and applied to U2. For normal operation, the full-screen input will be 800 mV p-p, and the voltage appearing at R8 is 800 mV p-p. When the TEST pushbutton is in a depressed position, pin 10 of U1 will be at logic 0, disabling the signal input channel and enabling the pin 1 channel to which the self-test signal is applied. The self-test signal, which is generated on CCA A1, is a sawtooth from 0 V to 0.8 V at a 50% duty cycle. This signal will appear at the U1 output and is developed across R8. Power to U1 consists of +6 V dc on pin 16, - 6 V dc on pin 7, and ground on pin 8.

2-6.5.2. Gain Control Circuit. The gain control section comprises voltage-follower U2 and the voltage divider composed of R9, R10, R11, and the front panel GAIN potentiometer. U2 has unity gain and provides low-impedance drive to the voltage divider.

2-6.5.3. Position Control and Amplifier Circuit. This circuit comprises differential amplifier Q2-Q3, with the POSITION control connected in the emitter circuit, and a current source Q1, feeding the center of the position control. R16, CR3, and R17 provide a -3.5 V dc base bias for Q1, with CR3 temperature-compensating the emitter junction of the transistor. R18 and R19 determine the current level of this constant current source. R18 permits the common-mode voltage at the vertical deflection plates to be adjusted to match the level on the horizontal deflection plates. The voltage divider made up of R12, R13, and R15 provides a +0.35 V dc bias to the base of Q3. This offsets the signal so that the origin is at the lower left corner of the graticule with the POSITION control centered. The gain of the differential amplifier comprising Q2 and Q3 is 8.1, measured from the single-ended input at the base of Q2 to the differential signal applied to the bases of Q4 and Q6. For a 535 mV p-p signal at the base of Q2, the differential signal will be approximately 4.4 V p-p or 2.2 V p-p from each base to ground. For a self-test signal of 0 to 0.54 V at the base of Q2, the signal at the Q4 base will be a sawtooth from +4.5 V to +2.3 V. At the Q6 base, the sawtooth will go from +2.3 to +4.5 V. It is assumed for the self-test signal levels that the position control has been readjusted to center the self-test display.

2-6.5.4. Deflection Plate Driver Circuit. This circuit comprises Q4 thru Q7 and associated components. Q4 and Q6 are connected as common-emitter amplifiers, with gain set by emitter resistors R28 and R31. The outputs at the collectors drive the high voltage output transistors, Q5 and Q7, as common-base amplifiers. This cascade configuration isolates the output capacitance from the driver stages. The output load resistors are R29 and R32, which, in conjunction with R28 and R31, provide an overall voltage gain of 23, measured from differential input to differential output. Since the full supply voltage is not needed by the output amplifier for full-screen deflection, dropping resistor R34 in series with the 208-V supply reduces the voltage to 150 V at C8 and C9. This minimizes power dissipation in the output transistors and collector load resistors. With the above stated differential inputs, signal levels at Q4 and Q6 and, with a voltage gain of 23, the Y-axis signal at each of the deflection plate outputs will be 51 V p-p riding on a average dc level of approximately 109 V. The self-test signal output from the Q5 collector will be a sawtooth going from +83 V to +135 V. From the Q7 collector, the sawtooth will go from +135 V to +83 V. A 10-to-1 resistive divider is connected to each of the deflection plate outputs and to test points (P1 pins 6 and 8) from which the output signal may be monitored for troubleshooting or maintenance purposes.

2-6.6. X-Axis Amplifier CCA A3. (See figure FO-5.) The X-axis amplifier is identical to the Y-axis amplifier, except for the gains of the two amplifier circuits and voltage levels throughout the amplifier. Interstage amplifier Q2-Q3 has a gain of 6.4, and the gain of the output deflection plate driver amplifier is 61. The same test signal is applied, but the horizontal sweep signal applied to the X-axis signal input is a sawtooth from 0 to +1.0 V. The signal selected by the TEST pushbutton appears at the output of U2 and at the clockwise end of the GAIN control.

With the gain control set at the approximate center position, the horizontal sweep signal at the base of Q2 will be a sawtooth going from 0 V to +0.67 V. The output of Q2 applied to the base of Q4 will be an inverted sawtooth going from +4.5 V to +2.3 V. The sawtooth applied to the Q6 base will go from +2.3 V to +4.5 V. The deflection plate output from Q5 will be a sawtooth going from +43 V to +175 V, and the output from the Q7 collector will be an inverted sawtooth going from +175 V to +43 V.

With the TEST button in the depressed position and the GAIN control set at the approximate center position, but the HORIZ POSITION control not readjusted, the self-test signal at the base of Q2 will be a sawtooth going from 0 V to +0.54 V. The sawtooth at the collector for Q2 will be inverted, decreasing from +4.5 V to +2.7 V. The sawtooth at the collector of Q3 will go from +2.3 V to +4.1 V. The self-test output from the collector of Q5 will be a sawtooth increasing from +43 V to +149 V. The output from the collector of Q7 will be an inverted sawtooth going from +175 V to +69 V.

2-7. INDICATOR CONTROL DETAILED THEORY.

The CCAs and ECAs of the indicator control are described here in numerical order by assembly number.

2-7.1. Circuit Clock CCA A1. (See figure FO-8.) Circuit clock CCA A1 contains a reference oscillator that produces a timing signal for use by CCAs A5 and A6. The reference oscillator circuit comprises Q1, Q2, Q3, Y1, and associated components. Q1 and Y1 are connected in a Colpitts oscillator arrangement with the split-capacitor feedback circuit comprising C7, C8, and L2. C6 across the feedback circuit permits peaking of the tuned circuit. Amplifier transistors Q2 and Q3 are driven to saturation and cutoff to convert the oscillator sine wave to a square wave. The filter consisting of L1 and C1 thru C4 decouples the +5 V dc supply from the oscillator output frequency. The 4.096 MHz output from Q3 of the oscillator circuit is applied to memory CCA A6 to help produce a 1-µs delay for timing purposes on that assembly. Memory I/O buffer CCA A5 uses the oscillator output to clock the ADC.

2-7.2. Sweep Address CCA A2. (See figure FO-9.) Sweep address CCA A2 contains a binary counter that, in the wide sweep mode, is incremented by a fixed frequency from a starting point 10 MHz below center frequency, as preset by the center-frequency code received from RC interface CCA A7 and an inverted 10-MHz bit from timing controller CCA A3. The sweeping 12-bit binary counter output is applied to receiver sweep ECA A15, where it is converted to analog form for sweeping the local oscillator via loop amplifier CCA A14A2. At a predetermined count, corresponding to the receiver tuned frequency point where the band must be changed, a sector carry pulse is generated. The sector carry pulse is applied to timing controller A3 where it initiates the band change functions (including the necessary settling dead time) and a terminal count flip-flop (TCFF) pulse that resets the appropriate multiplexers on receiver control interface CCA A7. When the 43.5-kHz clock resumes after the dead time interval, the counters resume counting but from the 0 point loaded during the dead time interval. The count terminates at the end of the 20-MHz sweep sector when the independent but corresponding write address counter on memory address CCA A4 generates an X-axis carry pulse that initiates a new cycle. In the narrow mode, the clock input is disabled, the counter load command remains in the active state, and the write address counter output is converted by receiver sweep ECA A15 to a ramp voltage that starts negative and sweeps to an equal but opposite positive voltage. This ramp voltage is summed with the fixed center-frequency voltage such that the local oscillator sweeps ±1 MHz about center frequency. The various bands have sufficient overlap to eliminate the need to switch bands during a sweep if center frequency is near or at the end of a band (in narrow mode).

2-7.2.1 BCD-To-Binary Converters. BCD-to-binary converters U1 thru U8 convert the BCD center frequency code from receiver control interface CCA A7 to a straight binary code that is applied to the parallel entry inputs of counters U9 thru U12. The 10-kHz least significant bit (.01) is the same in BCD and binary formats, so decoding is not required. The 10-MHz most significant bit is received via a logic circuit on timing controller CCA A3. This bit is discussed further in the description of CCA A3 below. Since sweep occurs in 20-MHz sectors, the 20-, 40-, 60-, 80-, and 100-MHz bits of the overall frequency word are not required by this assembly. Therefore, the highest center frequency applied to the counter parallel inputs is 19.99 MHz in binary format.

2-7.2.2. Binary Counter. The logic low sector count load pulse received from CCA A3 on assembly pin 70 loads the parallel center-frequency binary word into the counter, after which the clock input received from CCA A3 on pin 23 is enabled and the counter counts upward from this starting frequency. The decoding circuit comprising NAND gates and inverters U13, U14, and U15 produces a sector carry output pulse on count 19.995, which is used by CCA A3 as described above. The the multiplexers on CCA A7 are reset to 0, the counters load this 0 frequency code and, after a dead time, the count is resumed. The counter counts upward from 0 until the clock input is again disabled by the X-axis carry pulse generated on memory address CCA A4. In the narrow sweep mode, the clock input is disabled and the counters remain at the fixed frequency loaded by the permanently low sector count load input.

The sweeping or fixed 12-bit binary code from the counters is applied to receive sweep CCA A15, where it is converted to a corresponding sweeping or fixed dc voltage for further processing and eventual application to loop amplifier CCA A14A2.

2-7.3. Timing Controller CCA A3. (See figure FO-10.) Timing controller CCA A3 coordinates the timing of the various assemblies with respect to sector scanning and band change, dead time delay, RF and local oscillator select, loop amplifier guiding voltage preset, and RAM read and write.

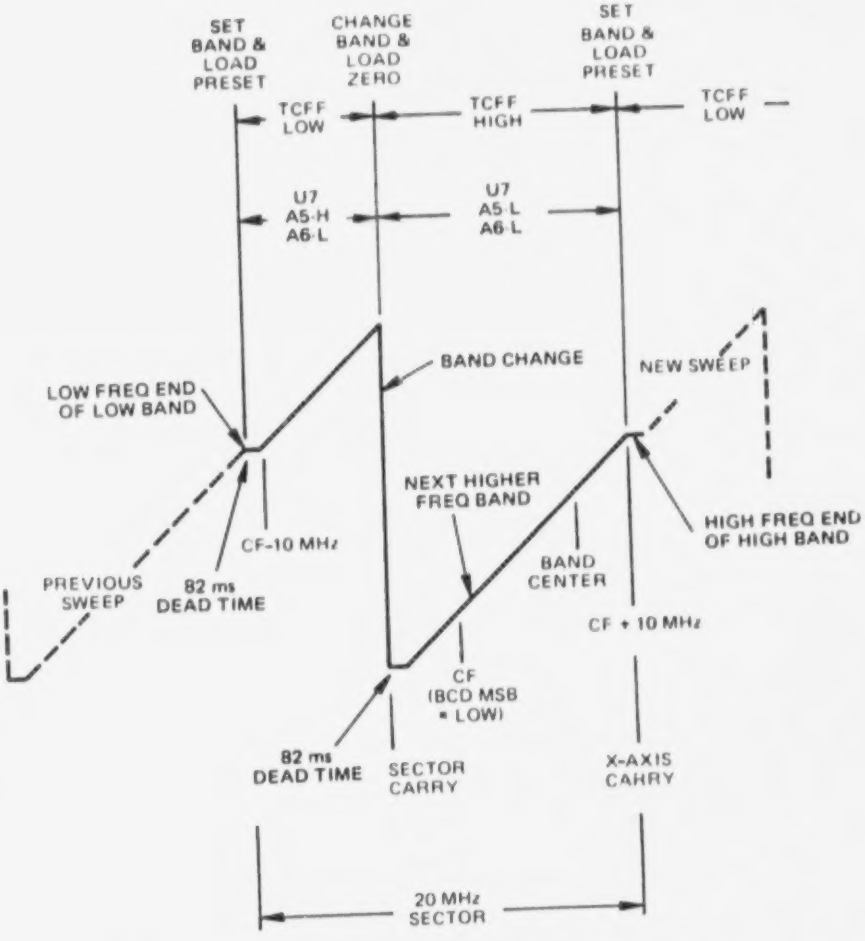
2-7.3.1. Clock Circuitry. Timer U1 is connected as an oscillator that produces a 43.5-kHz square-wave signal. This signal serves as the basic clock for the indicator control. The clock output from CCA A3 pin 17 is returned to pin 9 and also is applied to CCA A6 pin 11 and CCA A4 pin 59 to clock the circuitry on these assemblies. The clock signal received on pin 9 is applied to one-shots U2A and U2B and to NOR gate U15C. U2A triggers on the high transition, and U2B triggers on the low transitions of the clock signal. One-shots U3A and U3B trigger on the low transitions of the approximately 4-μs positive output pulses of U2A and U2B. U3A and U3B each produce a 1 s pulse when triggered. These pulses are used for memory read/write command and memory latch load command on CCA A6. The 4-μs delay ensures that these functions do not coincide with memory address changes. The one-half cycle delay permits full RAM readout before loading the data into the RAM latches. During the active portion of a scan, gates U13C and U15C are enabled by a dead time delay one-shot so that the RAM read/write and 43.5-kHz clock signals are passed in inverted form to CCA A3 input pins 19 and 39, respectively.

The gated clock signal from pin 39 is applied to flip-flop U4B and inverter U16C via CCA A3 pin 41. The output of U16C clocks flip-flop U6A and is also applied to CCAs A2 and A4 via pin 15. The RAM write address counter on CCA A4 and the sweep address counter on CCA A2 are thus coordinated with each other and the logic circuitry on this assembly by the common gated clock signal.

2-7.3.2 Band-Change Control Logic. (See figure 2-3.) During the preband-change portion of a scan while in the wide (± 10 MHz) sweep mode, the sector carry signal received from sweep address CCA A2 is low. The resulting logic high clocked through the $\overline{Q}$ output of U4B is applied to NAND gate U12A. Also, logic high received from the X-axis carry output of the RAM write address counter on memory address CCA A4 is applied to the other input of U12A. The resulting logic low output of U12A does not trigger one-shot U5A or U5B, but is clocked through flip-flop U6A. Gates U13C and U15C thus remain enabled by U5A, and U5B does not produce a VCO guiding pulse. Also, the logic low output of U6A and the logic low from the sweep width pushbutton (wide sweep mode) cause NOR gate U15D to produce a logic high output that does not permit the sweep address counter on CCA A2 to load the starting frequency data word. Therefore, the sweep progresses normally from a previously loaded starting frequency without interruption.

The logic low from the sweep width switch (received on pin 47), aside from enabling U15D, disabled NAND gate U13A and serves as an enable input to NOR gate U14B. The Q output of U6B was set low at the termination of the previous sweep. This output of U6B was set low at the termination of the previous sweep. This output provides a second enable input to U14B and disables NAND gate U13D such that the output of U16F is low. The logic high output of disabled U13A enables U13B. Therefore, the BCD MSB (10 MHz) received on pin 37 from receiver control interface CCA A7 is prevented from being gated through U13D and U13A and is gated through U14B. The inverted MSB output from U14B is applied to inverter U16E and also applied along with the output of U16F to programmable read-only memory (PROM) U7. The U16E output is again inverted by U13B and the overall inverted MSB from U13B is applied along with the remaining center-frequency data word to the BCD-to-binary converters on sweep address CCA A2.

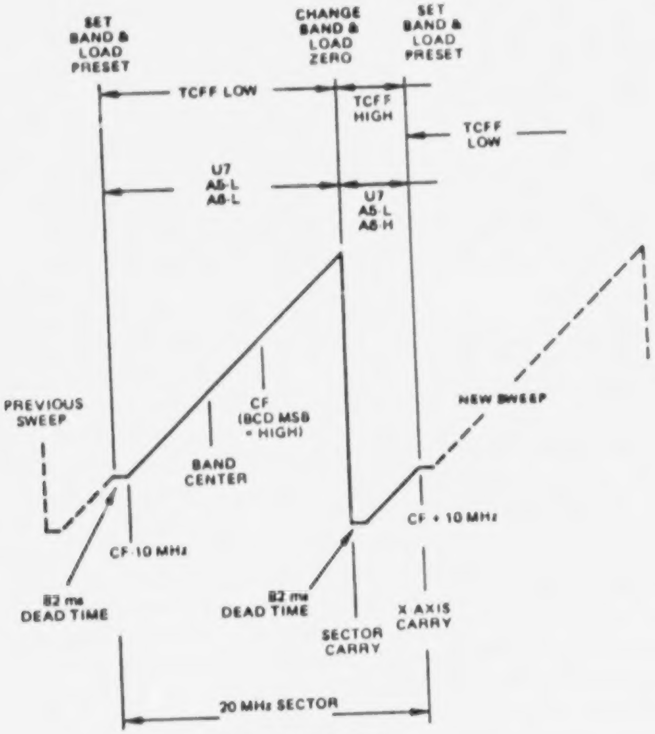
U7		SET BAND
A5	A6	
H	L	CF -1
L	L	CF
L	H	CF+1



(A) CF BELOW BAND CENTER

Figure 2-3. Wide Sweep Mode Timing (Sheet 1 of 2)

Inverting the MSB serves to offset the frequency loaded into the sweep address counter at the beginning of the scan by 10 MHz, so the scan starts 10 mHz below center frequency and terminates 10 MHz above center frequency. However, at the point of the scan under discussion, the ramp is progressing upward from the low frequency (center frequency minus 10 MHz) starting point.



(B) CF ABOVE BAND CENTER

Figure 2-3. Wide Sweep Mode Timing (Sheet 2 of 2)

The MSB and the TCFF output are decoded by U14B and U13D to supplement the band-select inputs to PROM U7 with sector data, necessitated by the 10-MHz offset. If the center frequency is in the lower half of a 20-MHz sector, for example, at the beginning of the sweep, U7 must select the band below that indicated by the 4-bit data word received from CCA A7 and the band must change to that indicated by the 4-bit word at the end of that sector. If, on the other hand, the center frequency is in the upper half of a band, the scan must start in that band and the next higher band must be selected at the end of the sector. Table 2-1 is an overall truth table for U7.

Table 2-1. U7 Truth Table

Center frequency range, MHz	U7 inputs				XO select			Vco select	
	A4 100 MHz	A3 80 MHz	A2 40 MHz	A1 20 MHz	Q3 (with A5 and A6 low)	Q2	Q1	Z2 (with A5 and 6A low)	Z1
20 to 39.995	0	0	0	1	0	0	0	0	0
40 to 59.995	0	0	1	0	0	0	1	0	1
60 to 79.995	0	0	1	1	0	1	0	1	0
80 to 99.995	0	1	0	0	0	1	1	1	0
100 to 119.995	1	0	0	0	1	0	0	1	1
120 to 139.995	1	0	0	1	1	0	1	1	1
140 to 159.995	1	0	1	0	1	1	0	1	1

U7 inputs A5	A6	Set band
H	L	CF-1
L	L	CF
L	H	CF+1

At the peak of a 20-MHz sweep sector, the sector-carry logic high from CCA A2 is clocked through U4B and the logic low $\overline{Q}$ output is inverted by U12A. U5A and U5B are not triggered by the high transition of the U12A output, but the logic high is clocked through U6A on the next half cycle by the clock from U16C. The logic high transition of the U6A Q output clocks the steady-state X-axis carry logic high through U6B (the U6B output was initially set low on termination of previous sweep) and also changes the U15D output to logic low. The logic high U6B output disables U14B (logic low output), which in turn causes U7 to change the band and causes the MSB output of U13B to go low. The logic high TCFF output from pin 11 and the logic low sector count load output from pin 27, applied to CCAs A7 and A2 respectively, load a 0-frequency parallel data word into the sweep address counter on CCA A2. Upon loading of the counter, the sector carry input to U4B terminates, which causes the $\overline{Q}$ output of U4B to go high on the next clock pulse. The high transition is inverted by U12A so that U5A and U5B are triggered by the low transistion at their inputs. U5A, when triggered, interrupts the gated clock and RAM read/write signals for 82 ms (band-change dead time). Simultaneously, the 14 ms guiding pulse output of U5B causes the circuitry on ECA A14 to preset to the starting point selected by the band code provided by U7.

When the U5A is triggered, the logic high clock output pulse of U15C, which initiated the dead time period, is abruptly terminated. The low transition is inverted by U16C and clocks the logic low output of U12A through U6A to U15D. The sector count load output of U15D is thus terminated after a duration of one clock period. Other changes in the circuit status do not occur, however, until termination of the dead time period when U15C is again enabled. The 82 ms dead time permits the local oscillator loop to stabilize before resuming sweep.

When the gated clock resumes at the end of the dead time, the counter on CCA A2 begins counting from the 0 frequency point, the write-address counter on CCA A4 resumes counting from the point of interruption, and the RAM read/write circuit on CCA A6 continues to function in coordination with the write-address counter. The timing logic circuitry does not change state upon resumption of the sweep because U4B and U6A were returned to their original output states upon initiation of the dead-time period. The only differences in the output states of this circuit from the preband-change condition are that the Q output of U6B (TCFF) is high, U13D is enabled, and the MSB output of U13B is unconditionally low. The high TCFF output continues to hold the multiplexers on CCA A7 in the reset condition, although this is of no consequence because the outputs have no further effect on the counter on CCA A2. However, the TCFF logic high, in disabling U14B and enabling U13D, permits the MSB to select the appropriate U7 band code in coordination with the four upper decade center-frequency bits (table 2-1).

At the end of the 20-MHz band, the RAM write address counter on memory address CCA A4 produces a logic low X-axis carry output that is applied to U12A and U6B on this assembly via pin 33. The resulting logic high output of U12A does not trigger U5A or U5B, but does cause U6A to change state on the next transition of the gated clock signal. The logic high output of U6A simultaneously clocks the X-axis carry logic low through U6B and disables U15D. The logic low TCFF output of U6B enables the multiplexers on U7, enables U14B,and disables U13D. Therefore, the offset center frequency code is again applied to the scan counters on CCA A2 via the BCD-to-binary decoders, the outputs of U14B and U16F return to the preband-change sector select conditions described above, and the sector count load logic low from U15D causes the scan counters to load the new starting frequency (center frequency minus 10 MHz). The X-axis carry pulse terminates on the next clock transition (on-half cycle later), which causes the output of U12A to go low and trigger U5A and U5B. Therefore, a guiding pulse and an 82-ms dead time are again produced to complete the band change functions. As before, stopping of the clock output of U15C produces a logic low transition that is inverted by U16C to clock U6A. The output of U6A thus returns to logic low, terminating the sector count load command. Upon termination of the 82-ms dead time, the gated clock and RAM read/write signals are enabled and the counters begin counting upward from their respective 0 frequency and offset frequency starting points. The overall process continues repetitively.

In the narrow sweep mode, the input from the sweep width switch, received on pin 47, is high (the pullup resistor is located on receiver sweep A15). This logic high disables U14B and U15D and enables U13A. The disabled-state logic low output of U14B is inverted by U16E to enable U13B. Therefore, the 10-MHz MSB is routed through U13A and U13B for noninverted application to the BCD-to-binary decoder circuit on CCA A2. Also, at the end of the next sweep, the output of

U6B is set to logic low. This low TCFF output enables the multiplexers on CCA A7 and disables U13D. The steady state sector count load output from disabled U15D commands the counter on CCA A2 to load the center frequency (without offset) and prevents the counter from incrementing from this point. The center-frequency output from the CCA A2 counter is summed on ECA A15 with a ± 1-MHz sweep word from CCA A4. Also, the disabled-state outputs from U14B and U13D (the latter inverted by U16F) cause the output code of U7 to correspond directly to the band indicated by the four upper decade bits. Therefore, the local oscillator sweeps ±1 MHz about the center frequency and no band change occurs if the sweep extends beyond a band edge. The various bands have sufficient overlap ranges so that no band change is required in the narrow sweep mode.

2-7.3.3 Band-Select PROM. The Q1, Q2, and Q3 outputs of PROM U7 are applied directly to RF oscillator ECA A12 and loop amplifier CCA A14A2. The 3-bit binary code is decoded on these assemblies to 6-bit decimal format (decimal 7 is not used) to select the loop RF and preset guiding voltages appropriate for each of the seven 20-MHz bands. The Q2 and Q3 outputs decoded by U11C and U16D, as well as the Q4 output of U7, are used to select the local oscillator (CCA A8A2) and RF preselector (CCA A8A1) bands. This separate band code is necessary because the local oscillator and preselector cover the 20-MHz to 150-MHz frequency range in four bands. Two of these bands cover more than one 20-MHz band, making it unnecessary to change local oscillator and preselector bands when the RF oscillator changes from band 3 to 4, from band 5 to 6, or from band 6 to 7. The band select codes are listed in table 2-1.

2-7.3.4. Frequency Limit Logic. To prevent a false or misleading vertical signal from appearing on the CRT trace when the sweep goes beyond the maximum frequency (150 MHz) of the receiver section, it is necessary to provide a blanking signal to the DAC circuit on memory I/O buffer CCA A5. This blanking voltage is generated by logic gates U11B, U11D, and U12C, which decode three of the band-select outputs for U7 and the high limiter blank input from receiver sweep ECA A15. If not in band 7, U12C is disabled by the Q1 and Q2 outputs from U7. U12C in turn disables U11B. Therefore, the output of U11B is logic low regardless of the state of the high limiter blank logic signal received on pin 78 from ECA A15. The logic low output of U11B permits the video circuits on CCA A5 to function normally. If, on the other hand, the Q2 and Q3 outputs of U7 are both high and the Q1 output is low, indicating band 7, the output of U12C goes low to enable U11B, and U11D is enabled. Therefore, the high limiter blank logic signal is passed via U11D and U11B to the frequency limit control input of CCA A5. The high limiter blank input goes high each time the local oscillator tuning voltage output from ECA A15 reaches a level slightly beyond the midband point. This logic high transition is applied to the frequency-limit control input of CCA A5 only when in band 7 while U11D and U11B are enabled, thus interrupting the video signal slightly beyond the 150-MHz point. The sweep will continue past the 150-MHz point, but with no vertical deflection as evidenced by the absence of baseline noise or signal.

2-7.3.5. Blanking and Center-Frequency Marker. The center-frequency marker circuit in figure FO-10 is not used in this application. The fixed low input on pins 81 and 82 are hardwired from memory CCA A6 connector. This low input disables U8A, U8B, U9A, and U9B on timing controller CCA A3, setting their Q outputs low, thereby enabling U14A and U11A. The low input to U8B disables the marker signal to memory I/O buffer CCA A5.

At the end of the sweep, the sweep carry input goes low, setting the Q output of U4A high. This high disables U14A, causing the Z-axis output to go low and blank the sweep retrace. The sweep carry returns low after the retrace, and the retrace unblank pulse received on pin 29 clocks the logic low D input of U4A through to the Q output, thus returning the Z-axis output to logic high and permitting normal display of video on the CRT screen. The Z-axis output is also applied to the test circuit on memory address CCA A4.

2-7.4. Memory Address CCA A4. (See figure FO-11.) Memory address CCA A4 contains two binary counters that address the read and write inputs of the RAMs on CCA A6 and a test circuit that detects malfunctions in the indicator control by monitoring video, sweep, and Z-axis signal activity. If the equipment is operating normally, the test circuit will light the CKT TEST lamp on the FREQ MKR/CKT TEST pushbutton if the button is pressed. The RAM write address counter output is also applied to receiver sweep ECA A15 for conversion to an analog ramp voltage, which is used to sweep the receiver section ±1 MHz about center frequency while in the narrow sweep mode.

2-7.4.1 RAM Write Address Counter. Counter stages U12 thru U15 are connected in tandem to provide an incrementing 10-bit binary word used to address the RAM write inputs on CCA A6 and to scan the digital-to-analog converter on receiver sweep ECA A15 for generation of the narrowband sweep ramp. Bit Q_D of the first stage is inverted by U19F for use as the RAM write clock. Since the first stage of the counter is not used to address the RAMs, this stage serves only to reduce the clock frequency to the 10-bit section of the counter (U13, U14, U15) to 2.7 kHz. NAND gates and inverters U16, U18B, U19B, U19C, U19E, and U20C produce a logic high on count 999 of the 43.5-kHz clock frequency, which is clocked through flip-flop U17A synchronously with the 43.5-kHz gated clock from timing controller CCA A3. The Q output of U17A resets the counter, and the $\overline{Q}$ output is applied as an X-axis carry to timing controller CCA A3. Upon resetting of the counter, the decoding circuit output goes low so that the X-axis carry pulse returns low in the next 43.5-kHz clock pulse. Because the carry pulse is generated before the maximum count capacity of the 10-bit word is reached, only 999 memory locations are addressed. The total number of stages of this counter matches the sweep address counter on CCA A3, however, and the X-axis carry pulse and the common gated clock serve to synchronize the two counters. Therefore, the RAM write address steps in correspondence with the receiver section sweep voltage derived from the sweep address counter. This ensures precise tracking of the horizontal sweep on the CRT display with the tuned frequency read from the memory for display. The maximum count of 999 of the RAM write counter corresponds to amount of 19.99 of the sweep address counter. This difference in maximum count is the result of the difference in the number of bits used, which causes a 1-bit reduction in value of the MSB of the binary data word. Note, however, that the two counters may differ in overall count because of the offset frequency preset into the sweep address counter at the beginning of the sweep. Also, in the narrow band, the sweep address counter holds at the center frequency, while the RAM write counter continues to function. See sweep address and timing controller descriptions above. The 999 count of the first-stage 2.7-kHz output determines the overall scan rate of this counter and the sweep address counter to be approximately 2.7 Hz. This relatively slow scan is necessary to permit the local oscillator frequency-lock loop to track the ramp voltage.

2-7.4.2. RAM Read Address Counter. Counter stages U8, U9, and U10 are connected in tandem to produce an incrementing 10-bit binary word for addressing the RAM read inputs on memory CCA A6. The carry/reset decoding circuit comprising NAND gates and inverters U11, U18A, U18C, and U20D, U20E, U20F, and flip-flop U17B is identical to the decoding circuit for the write address counter. Therefore, the sweep carry occurs on count 999 of the 43.5-kHz clock from CCA A3. This counter cycles without interruption at a rate 16 times faster (43.5 Hz) than the write address counter (2.7 Hz). However, due to dead times that interrupt the write address counter, the complete cycle rate of the write address is only 2 Hz. The sweep carry output of U17B and the fourth bit from U8 are applied to timing controller CCA A3 for retrace blanking and unblanking. Note that video is lost during the very early part of the scan because the trace is not unblanked until the fourth bit (count 16).

2-7.4.3. Test Circuit (BITE). U1 thru U7 combine to form a test circuit that in the frequency-marker operating mode provides an indication to the operator of the functional status of the equipment. The circuit does this by monitoring the X-, Y-, and Z-axis signals received on pins 13, 15, and 19. The X and Y signals are buffered by complementary emitter-follower ICs U1 and U2 and differentiated by U3 and U4 before application to one-shots U5B and U5A. C26, R8, C27, and R14 are the differentiating elements of U3 and U4. Zener diodes VR1 and VR2 prevent the amplifier outputs from exceeding TTL levels. The three one-shots, when triggered produce pulses that are applied along with the enable input from the FREQ MKR switch to NAND gate U7. The output of U7 is inverted by Q1 for operating the CKT TEST lamp via transistor Q2. The other side of the lamp is returned to +28 V dc. If the X-, Y-, and Z-axis circuits are functioning properly, there is sufficient activity in each channel to cause overlap of one-shot pulse outputs, keeping NAND gate U7 enabled (if the input from the marker switch wiper is high) so that the CKT TEST lamp lights. If any one of the signal inputs is absent due to a circuit malfunction, the corresponding one-shot is not triggered and the NAND gate is not enabled. The CKT TEST lamp thus remains off to indicate a malfunction in the indicator control. On the other hand, if the CKT TEST lamp is lit but no X, Y, or Z signal is observed on the CRT display, a malfunction more likely exists in the panoramic indicator.

2-7.5. Memory I/O Buffer CCA A5. (See figure FO-12, sheets 1 thru 3.) Memory I/O buffer CCA A5 converts the logarithmic video signal from logarithmic amplifier ECA A10 to a digital form suitable for application to the memory on CCA A6, converts the Y-axis digital signal read from the memory to an analog video signal for application to the vertical input of the panoramic indicator, and converts the memory read address signal to a sawtooth signal for application to the horizontal sweep input of the panoramic indicator. Center-frequency marker (optional) and center-frequency position adjustment inputs are also applied to this assembly.

2-7.5.1 Video Analog-to-Digital Converter. (See sheet 1 of figure FO-12.) The circuit shown on this sheet converts the log video signal received on pin 83 from logarithmic amplifier ECA A10 to an 8-bit digital signal. The digital signal is applied to memory CCA A6 via pins 70 thru 77. A/D conversion is achieved by connecting a counter, a digital-to-analog converter (DAC), and a comparator in a feedback arrangement that permits the counter to count 4-MHz clock pulses (received from CCA A6 on pin 81) until the counter output is numerically proportional to the instantaneous analog voltage. At this point, the counter is stopped and the counter output may be read into the memory on CCA A6. The conversion cycle is initiated at 200-ms intervals by an A/D enable command received on pin 79 from memory CCA A6.

Four-bit counters U4 and U5 are connected in tandem to form the 8-bit counter. U3 is the DAC and U1 is the comparator. The counter is operated in the countdown mode because of the negative logic input requirements of DAC U3. Prior to initiation of the conversion cycle, the A/D enable logic high input causes the outputs of U6B and U6C to be logic low. The logic low output of U6B parallel-loads maximum count into the 8-bit counter and the logic low output of U6C holds 4-bit shift register U17 in the reset condition. When the A/D enable input goes low, 4-MHz clock pulses are shifted through U17. After four 4-MHz clocks have been shifted into U17, its Q_D output goes high.

This causes the output of U6 to go low, thus removing the preset command from U4 and U5 after approximately 1 ms. Initially, the output of U1 is at logic high. This high and the A/D enable command enable NAND gate U6A so that the 4-MHz clock pulses may clock the counter downward from the preset point when the preset command from U6B terminates. The A/D enable input remains high for 115 μs, which is sufficient time for full-scale conversion.

The counter output is converted to an analog current signal by DAC U3, and the output of U3 is converted to a corresponding voltage by operational amplifier U2. The operational feedback loop for U2 is through U3 via pin 16. Back-to-back diodes CR1 and CR2 protect U3 from accidental excessive voltage, but do not interfere with normal operation because the operational amplifier summing-point input voltage is essentially 0. The analog output of U2 is applied to the noninverting input of comparator U1 for comparison to the logarithmic video signal. The output of U2, as the counter counts downward from the preset point, is an increasing ramp voltage. Offset trim-potentiometer R3 sets the starting point, and gain adjust trim-potentiometer R6 sets the full-scale output level. As the counter counts downward, the ramp voltage increases, but until the level equals the instantaneous level of the logarithmic video signal, the output of U1 remains at logic high, thus permitting the count to continue. When the ADC output level reaches that of the logarithmic video signal, U1 changes state and stops the counter by disabling U6A. The counter output, which at this point is numerically proportional to the instantaneous logarithmic video signal level, can now be read into the memory on CCA A6. After the 115-μs period has elapsed, the A/D enable input goes low, ensuring that the ADC is disabled from changing. The A/D enable input goes high again 256 μs later to initiate a new conversion cycle. Above 150 MHz, the frequency blank input received on pin 67/68 from CCA A3 goes high and disables the ADC by clearing U5.

In normal operation, CR8 is reverse biased, and +15 V dc (less one diode drop) is applied to the positive supply voltage input of U3. If the +15 V dc supply voltage accidentally goes to near 0, due to failure or momentary short circuit on another assembly, for example, CR7 becomes reverse biased and +5 V dc (less one diode drop) is provided to the positive supply input of U3. This is necessary because U3 could be damaged if the positive supply voltage were allowed to become 0 while logic 1 levels were applied at the inputs of the chip.

2-7.5.2. Digital-To-Analog Video Converter. (See sheet 2 of figure FO-12.) The circuit shown on this sheet converts the Y-axis digital signal read from the memory on CCA A6 to an analog video signal applied to the vertical input of the panoramic indicator. The 8-bit binary Y-axis data word from memory CCA A6 is converted by DAC U7 to an analog current signal applied to the summing-point input of operational amplifier U8. U8 converts the current signal to a corresponding voltage signal. The operational feedback loop for U8 is through U7 via pin 16. Back-to-back diodes CR3 and CR4 protect U7 and U8 from accidental excessive voltage, but do not interfere with normal operation because the operational amplifier summing-point input voltage is essentially zero. Diodes CR9 and CR10 protect U11 from accidental loss of +15 V dc.

2-7.5.3 Straight-Line Generator. Sample-and-hold ICs U18 and U19 and integrator-connected operational amplifier U20 combine to form a straight-line generator that smooths the stepping video output of U8. Figure 2-4 is a block diagram of this circuit. Sample-and-hold U18 is operated inverting, and sample-and-hold U19 is operated noninverting. The two sample-and-hold outputs are applied to the integrator through summing input resistors R31 and R33. This produces an equivalent input to the integrator equal to the difference between the data input and the integrator output, applied through a single resistor. The sample-and-hold clock is the same 43.5-kHz clock that updates the Y-axis data word (RAM latch load). Acquisition time of the sample-and-holds is 1 μs as indicated in the timing diagram on figure FO-13. On occurrence of each sample clock pulse, U18 updates the new data level, and U19 updates to the current integrator output level.

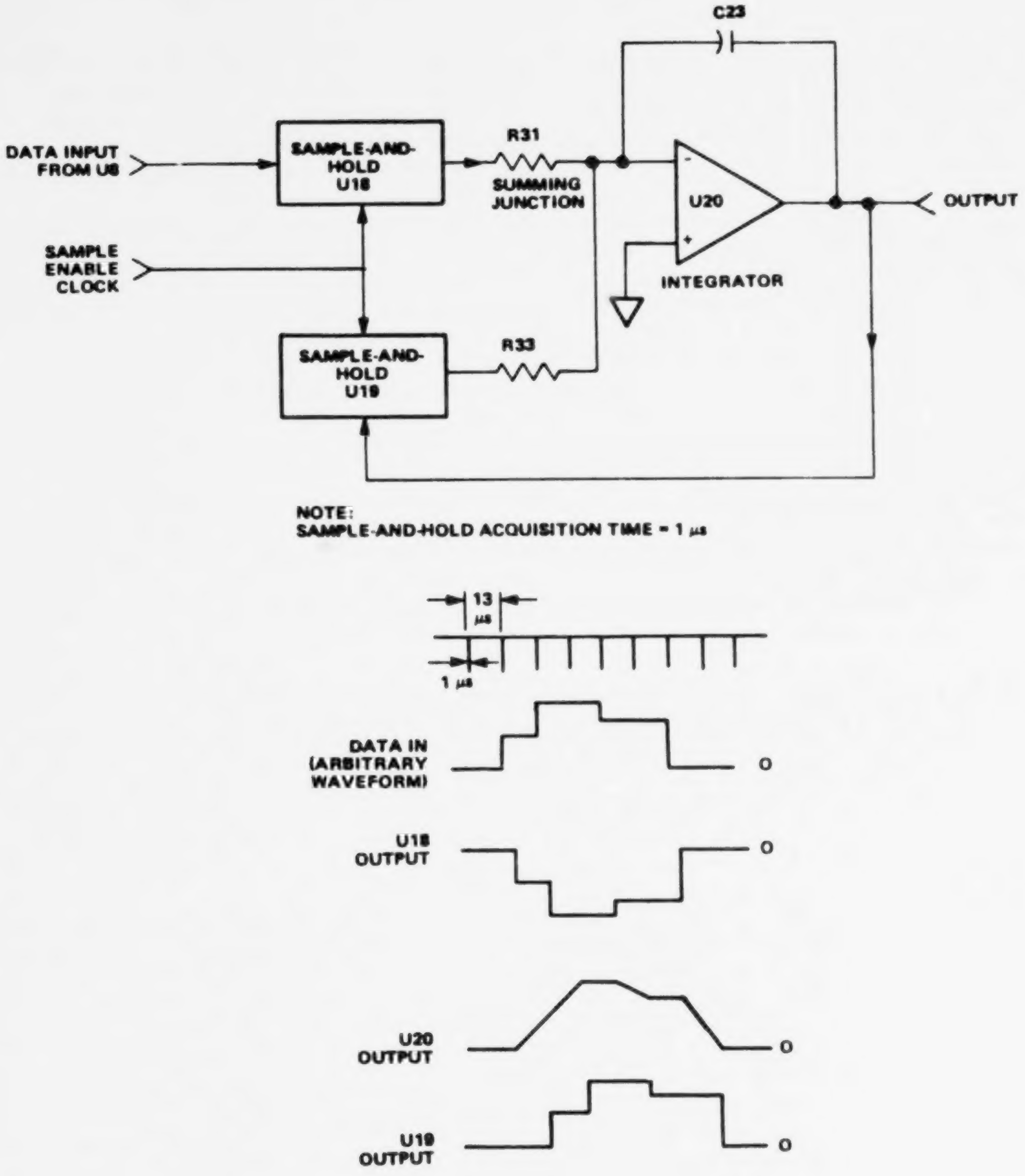


Figure 2-4. Straight-Line Generator

Therefore, the integrator integrates at a rate proportional to the step size of the data input and produces an overall output wave shape that ramps from level to level instead of stepping. Resistor R32 across the integrating capacitor smooths the waveform to further reduce corners. Diode CR13 across U19 prevents latching of this sample-and-hold.

2-7.5.4. X-Axis Digital-To-Analog Converter. (See sheet 3 of figure FO-12). The circuit shown on this sheet converts the incrementing binary memory read address generated by CCA A4 to a sawtooth signal used to sweep the panoramic indicator in coordination with Y-axis memory readout. The 10-bit binary read address received from CA A4 is inverted by U9 and U10 to satisfy the negative logic input requirements of DAC U11. U11 converts the inverted read address to an analog current signal that is applied to the summing-point input of operational amplifier U12. U12 converts the current signal to a corresponding voltage signal. The operational feedback loop for U12 is through U11 via pin 16. Back-to-back diodes CR5 and CR6 protect U11 and U12 from excessive voltage but do not interfere with normal operation because the operational amplifier summing-point input voltage is essentially 0. Diodes CR11 and CR12 protect U11 from accidental loss of +15 V dc. The sawtooth output signal of U12 is attenuated by a factor of approximately 10, the amount of attenuation being determined by the setting of R57. Operational amplifier U16 serves as low-pass filter that smooths the sawtooth ramp, provides a slight amount of attenuation, and permits a dc offset to be applied from the CTR FREQ ADJ control on the panoramic indicator front panel. Offset can be above or below 0. The 1-V-p sawtooth output from U16 is applied to the X-axis input of the panoramic indicator.

2-7.6. Memory CCA A6. (See figure FO-14.) Memory CCA A6 contains an 8-bit x 1024 word randcom-access video data memory, a 1-bit x 1024 word random-access center-frequency marker memory (not used in this application), and associated latches, multiplexers, and timing logic circuitry. The multiplexers alternately apply read and write address codes to the memories, and the latches store the video signal data read from the memories.

Refer to the functional block diagram for memory I/O CCA A6, figure 2-5, and to the corresponding timing diagram, figure FO-13. The top half of the timing diagram shows the various timing inputs received from the other boards. Logic levels during band-change dead time are indicated (blanking). During dead time, the functions, if blanked, are interrupted and hold at the indicated blanking levels, then resume upon termination of the dead-time period (approximately 82 ms). (Dead time permits stabilization of the local oscillator frequency-lock loop when the band is changed during midscan and at the end of sweep; the timing controller CCA A3 schematic description in paragraph 2-7.3.) The write and read addresses received from memory address CCA A4 increment at different rates. The read address scan rate is 16 times faster than that of the write address. This prevents flicker on the CRT screen, which would occur if the CRT were swept at the slower receive scan rate (see functional description in paragraph 2-4.) The address applied to the RAMs via the multiplexer alternates

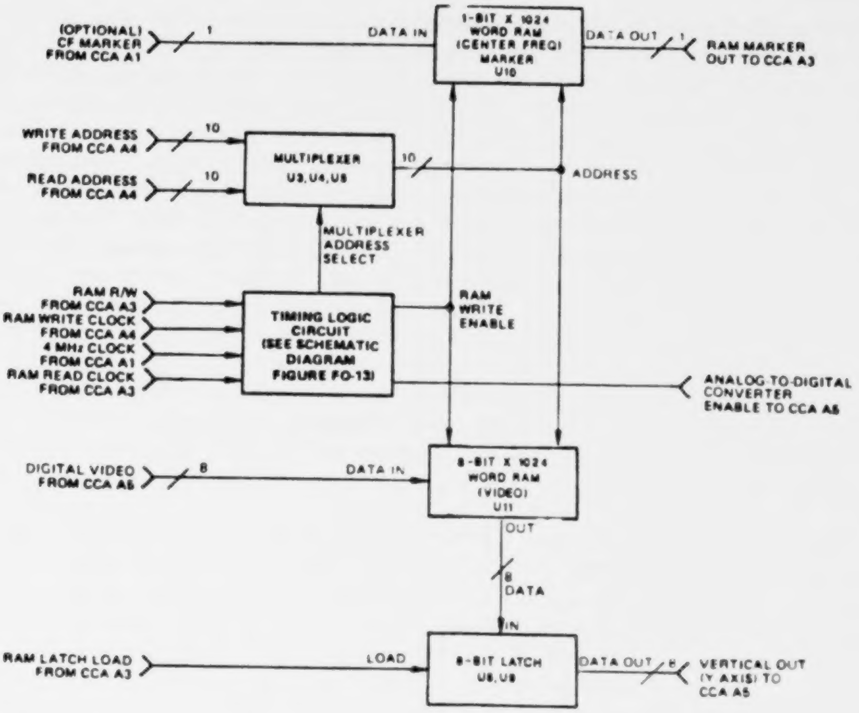


Figure 2-5. Memory CCA A6 Functional Block Diagram

between read and write at the 43.5-kHz clock rate, except during an A/D conversion of the video signal on CCA A5 and during blanking hold (dead time), at which times the address holds at read to prevent an erroneous digitized video signal from being read into the memory. The RAM write enable enters the digitized video signals and center frequency maker signals into the RAMS while the write address is applied. The information stored in the addressed memory channels is always available at the memory outputs; no strobe is required. However, because the RAM outputs are always switching back and forth between two differently addressed channels, it is necessary to synchronously select the output of the video RAM corresponding to the read address by means of latch. Note from the timing diagram, figure FO-13, that the latch load command occurs only while the multiplexer address is at logic low, at which time the read address is applied to the RAMS. The video RAM and latch update on the first RAM write enable and latch load commands following termination of the A/D enable command; the remaining RAM write enable and latch load commands are redundant. The A/D enable commands occur in step with the incrementing of the memory write address so that one update occurs for each video memory channel as the scan progresses.

2-7.6.1. Timing Logic. (See sheet 1 of figure FO-14). This sheet shows the timing logic circuit. This circuit utilizes several logic input signals to produce the A/D enable, multiplexer address select, and RAM write enable logic signals.

The A/D enable signal is produced from the RAM write clock from CCA A4, the RAM read clock from CCA A3, and the 4.096-MHz crystal-referenced clock from CCA A1, by U1, U2, U12, U13, U14, and U15. U1 is an 8-bit shift register and U2 is a 4-bit binary counter. U12B and U12C form a set/reset flip-flop multivibrator. The remaining components are NAND gates and inverters as indicated. Assume initially that the RAM write clock is at logic low and that sufficient 4.096-MHz clock pulses have occured to clock this low through shift register U1. The logic low Q_D output of U1 is inverted by U15A so that logic high is applied to one input of U15C. However, the RAM write clock logic low causes a logic high output from U15C, which is inverted by U13 so that U2 is not held in the clear condition. Also assume initially that U2, although not cleared, is in a hold condition because U15B is disabled by an output count of 14 detected by U13B as described below. It follows that the output of set/reset flip-flop U12B-U12C is initially high and is inverted by U14F for a logic low A/D enable output.

When the RAM write clock input goes high, the output of U1 does not change immediately, and thus a logic high is applied via U15C and U13B to the clear input of U2. The output of U12D remains high and the output of U13B goes high upon clearing of U2. The logic high transition applied to set/reset flip-flop U12B-U12C does not change the state of the flip-flop from the initial condition, but U14B and U14C are included to provide two gate delays to ensure proper setup of the flip-flop upon equipment turn-on or other possible cause of an incorrect initial condition. The logic high output of U13B also enables NAND gate U15B. While the counter is being cleared, U1 is shifting the RAM write clock logic high at a 4.096-MHz rate so that the Q_D output goes high 1 μs after initiation of the cycle by the RAM write clock. This disables U15C and terminates the clear command to U2. U2 is now able to count RAM read clock pulses passed by U15B. Since U6B inverts the RAM read clock, the count begins on the first low transition (1/2 cycle point). NAND gate U12D detects a count of 9, which occurs 9-1/2 cycles from the start of the program cycle. The logic low output from U12D at this point changes the state of the set/reset flip-flop so that the A/D enable output goes high to initiate an A/D conversion on CCA A5. U2 continues to count until a count of 14 is reached (14-1/2 cycles from the start of the program cycle), as detected by NAND gate U13B. The logic low output of U13B returns the set/reset flip-flop to the previous initial condition and disables NAND gate U15B to stop the count. U1 therefore holds at the count of 14 until the next cycle is initiated by the RAM write clock. Upon termination of the RAM write clock pulse, logic low is clocked through shift register U1 so that after 1 μs the Q_D output goes low to complete the return of the circuit to the initial state described above. NAND gates U12A and U15D combine the inverted A/D enable output from U12C with the RAM read clock and RAM read/write signals to form the multiplexer address select and RAM write enable logic signals shown in the timing diagram, figure FO-13.

2-7.6.2. Memories, Multiplexer, and Latches. This sheet shows the memories, latches, and multiplexers. Memory IC U11 receives video data bits 1 through 8 from the ADC on CCA A5. U10 is the marker memory (not used in this application). Ten address bits from multiplexers U3, U4, and U5 are applied in parallel to all memory ICs. The multiplexers apply the read and write addresses alternately as commanded by the multiplexer address select signal shown on the timing diagram (figure FO-13). These address words independently scan the 1024 different memory locations. The read address increments continuously at a 43.5-kHz rate, and the write address increments at a slower rate in step with receiver scan. The write enable command shown on the timing diagram (figure FO-13) and described above is applied in common to all memory ICs. Write enable occurs during write address. Latches U8 and U9 load the 8 bits of video memory data and the 1-bit marker memory output (not used in this application) when commanded by the RAM latch load input received from CCA A3. RAM latch load occurs during memory read address (see figure FO-14).

2-7.7. Receiver Control Interface CCA A7. (See figure FO-15.) A shift register in receiver control interface CCA A7 receives serial center-frequency data from the system receiver control. The parallel data word from the shift register is loaded into a latch circuit to prevent data from changing while new serial data are being received. The parallel center-frequency data word is used by the indicator control to determine appropriate preselector, RF oscillator, and local oscillator bands and band switching points. The latch output is multiplexed with a 0 reset data word in coordination with band-switching functions and also with a 60-MHz test data word if the 60 MHz TEST pushbutton is pressed.

2-7.7.1. Center-Frequency-Load. U10 and U6 are line receivers that receive BDC data, clock, and load inputs from the system receiver control. The clock signal received via U6B clocks the 51-bit data word (table 2-2) received via U10 into tandem-connected 8-bit shift registers U1 thru U5. The first three bits overflow the last stage of the shift register and are thus discarded. Bits 4, 5, 7, and the last 28 bits have no output connections and are also discarded. Only frequency bits 1 x 10 kHz thru 1 x 100 MHz are used. Of these bits, Q6 of U2 is the MSB and Q5 of U5 is the LSB. When all of the data are received, a load pulse arrives that loads the frequency bits in decade groups into quad latches U7A, U7B, U8A, U8B, and U9B (U9A is not used). Loading into latches prevents the parallel data word from changing while a new data word is being loaded into the shift registers.

During normal operation, the FREQ HOLD pushbutton wiper is closed, grounding the input line from this switch, pin 24 of P1. Latches U7, U8, and U9B therefore function normally as described. When the FREQ HOLD pushbutton is pressed, the wiper is held high by 5 V dc through pullup resistor R2 to disable the latches. The latches are thus prevented from updating with new frequency data, so the indicator control continues to scan the sector centered at the frequency retained by the latches while the receiver control may tune the system receiver to other frequencies.

Table 2-2. Receiver Control Output Bit Assignments

Bit No.	Function		Bit No.	Function	
1	Spare bit		26	2 x 1 kHz	
2	Spare bit		27	1 x 1 kHz	
3	8 x 100 MHz	Not used by ind. con.	28	MGC/AGC	
4	4 x 100 MHz		29	MGC (16)	
5	2 x 100 MHz		30	MGC (8)	
6	1 x 100 MHz	- A7U7B	31	MGC (4)	
7	Squelch	- Not used by ind. cond.	32	MGC (2)	
8	8 x 10 MHz		33	MGC (1)	
9	4 x 10 MHz	A7U7A	34	LMGC	
10	2 x 10 MHz		35	Function select	
11	1 x 10 MHz		36	IF band width select	
12	8 x 1 MHz		37	IF band width select	
13	4 x 1 MHz	A7U8B	38	Function select	Not used by ind. cond.
14	2 x 1 MHz		39	Test Tone	
15	1 x 1 MHz		40	Function select	
16	8 x 100 kHz		41	Function select	
17	4 x 100 kHz	A7U8A	42	Spare bit	
18	2 x 100 kHz		43	Spare bit	
19	1 x 100 kHz		44	Clarifier (32)	
20	8 x 10 kHz		45	Clarifier (16)	
21	4 x 10 kHz	A7U9B	46	Clarifier (8)	
22	2 x 10 kHz		47	Clarifier (4)	
23	1 x 10 kHz		48	Clarifier (2)	
			49	Clarifier (1)	

Table 2-2. Receiver Control Output Bit Assignments - Continued

Bit No.	Function		Bit No.	Function
24	8 x 1 kHz	Not used by ind. con.	50	Spare bit
25	4 x 1 kHz		51	A/B select

Pin 23 of P1 is not used and open. Therefore, this line is held at +5 V dc through pullup resistor R3 so that the line receivers, shift registers, and latches to which this line is connected may function normally. This logic high line is also applied to pins 6 and 13 of U15 as part of the 60-MHz hard-wired test code. The line may be grounded (logic low) manually with a clip lead for test purposes. Logic low disables the line receivers and resets the latches to zero. Several are also included for test purposes. Any of the jumpers may be unsoldered and the associated ICs operated manually with the use of a clip lead connected to either +5 V dc or to ground. A defective IC may thus be easily isolated.

2-7.7.2. Multiplexers. The latch outputs are applied to multiplexers U12 thru U18. Each of the bits, except the five most significant bits, is applied in parallel to two multiplexer inputs. The times-1-MHz bits are applied to U12 and U16, the times-100-kHz bits are applied to U13 and U17, and the times-10-kHz bits are applied to U14 and U18. The multiplexers function in two groups, as controlled by their strobe and enable inputs. The outputs from the group compromising U12, U14, and U13 are not used in this application. The outputs from the group comprising U16, U17, and U18 are applied to sweep address CCA A2. CCA A2 does not require bits above 1 x 10 MHz because sweep occurs only in 20-MHz sectors. The 1 x 10-MHz bit from multiplexer U15 is applied to CCA A2 via a logic circuit on CCA A3. Although not used to determine the sweep, the four most significant bits define the band in which sweep occurs. Therefore, the 20, 40, and 80 x 10-MHz bits from multiplexer U15 and the 1 x 100-MHz bit from U11A and U11D are applied to timing controller CCA A3, where they are decoded for band switching of the receiver assemblies.

The internal tune wiper input (pin 20) from the 60-MHz test switch is applied to the control gate inputs of U11C and U11D and to the select inputs of multiplexers U12 thru U18. When not in the 60-MHz test mode (normal operation), this input is low. The logic low enables U11C and U11D and causes the multiplexers to pass the frequency data from the latches. In the 60-MHz test mode, however, a logic high on this line disables U11C and U11D and causes the multiplexers to pass the 60-MHz code hard-wired to their second set of inputs.

Note that multiplexers U12, U13, U14, and U15 are permanently enabled by logic lows hard-wired to their enable ($\overline{E}$) inputs. However, multiplexers U16, U17, and U18, whose outputs are applied to sweep address CCA A2, are reset to 0 at the peak of each 20-MHz sweep sector by a logic high TCFF input (pin 49) from timing controller CCA A3. The 1 x 10-MHz bit from U11C is also reset to 0 by the logic circuit on CCA A3 at this time. The TCFF line returns to logic low when the sweep is complete so that CCA A2 may receive another center-frequency input.

2-7.8. RF Preselector CCA A8A1. (See figure FO-16). The RF preselector contains four varactor-tuned preselector circuits, each of which covers a portion of the 20- to 150-MHz band. Each preselector circuit consists of two transformer-coupled varactor-tuned LC sections that are switched by positive-intrinsic-negative (pin) diodes. The tuning voltage received from loop amplifier CCA A14A2 is applied in common to all preselector sections. Four band-select lines from the decoder driver circuit on local oscillator CCA A8A2 control the pin diode switches so that only one preselector circuit is active at a time, while the others remain isolated. The pin diode switches connect the input section of the selected preselector to a common antenna input tie point, connect the corresponding output section to a common output tie point, and route the interstage RF through a common RF amplifier module. Provision for injection of a test tone to the input tie point is also included.

The preselector has a gain of 10 dB minimum with a maximum total variation across each band of 1 dB and a maximum of 1 dB change from band to band in the band overlap range. The tuned filters have a 3-dB bandwith within 7% of center frequency.

2-7.8.1. Input Circuit. The RF input signal from the antenna is applied to the preselector input tie point via dc blocking capacitor C1. R1 and L1 provide a 1.1-kΩ current-limiting path to ground for the forward-biased input pin diode, while presenting a high impedance to the RF input signal. Shunt capacitor C2 prevents the stray RF properties of R1 from affecting the circuit. If the test tone generator is energized, the test tone signal is injected into the input circuit via dc blocking capacitor C42. R30 provides impedance matching for the test tone generator output lines, and R29 isolates the RF input circuit from the test tone line.

2-7.8.2. Preselector. The four bands covered by the preselectors are 19 MHz to 41 MHz, 30 MHz to 61 MHz, 59 MHz to 101MHz, and 99 MHz to 151 MHz. Since the four preselector circuits are essentially identical, signal routing through the 99-MHz to 151-mHz circuit will be described as representative of all four circuits.

When the preselector select voltage received on terminal E4 is -15 V dc, this voltage, applied to the pin diodes via L43, L48, L49, L50, and L55, reverse biases pin diodes CR89, CR96, CR97, and CR104 and forward biases pin diodes CR90, CR95, CR98, and CR103. The high impedances of the reverse-biased pin diodes isolate the associated tuned circuits from the other three preselector circuits. The low-impedance paths to ground presented by the forward-biased pin diodes ensure that the relatively high impedances presented by the associated tuned circuits do not defeat the purpose of the reverse-biased diodes by serving as legs of voltage dividers with these diodes. Total forward bias current through pin diodes CR90, CR95, CR98, and CR103 is limited to 3 mA by the collector resistor of the band 4 switching transistor on local oscillator CCA A8A2.

When the preselector select voltage becomes +10 V dc, pin diode biasing reverses; that is, CR89, CR96, CR97, and CR104 become forward biased, thus presenting low-impedance paths for the RF. CR90, CR95, CR98, and CR103 become reverse biased, presenting high impedance that prevent the RF from being shunted to ground. Chokes L43, L48, L49, L50, and L55 prevent the RF energy from getting into the select line. C33 and C40 further decouple the select line from RF.

The RF energy from the input circuit is thus routed through pin diode CR89 to L44, which passes RF energy to the varactor-tuned parallel circuit comprising CR91, CR92, and L45. Energy from L45 magnetically couples to L46 of the varactor-tuned secondary circuit comprising L46, CR93, and CR94. The secondary RF passes through L47 and on to RF amplifier U1 via pin diode CR96. The amplified RF is routed via CR97 to the second section of the preselector, which is identical in circuit configuration to the first section. The output from the second section is routed via pin diode CR104 to RF output terminal E6 through dc blocking capacitor C15. The filters in each of the four bands have been designed to provide a 5% bandwidth.

Networks L9-C7-R4, L10-C8-R5, and L17-C-14-R11 perform the same function as L1-C2-R1 described above, that is they provide 1.1-k current-limiting paths to ground for the respective forward-biased pin diodes while presenting high impedances to the RF signal. The resistors in these networks limit current in the control line of the selected preselector to approximately 35 mA. The capacitors of the series-tuned circuits of both preselector sections also prevent the pin diode control voltage from shorting to ground through the respective parallel-tuned circuits.

The positive tuning voltage (approximately +3.5 V dc to +26 V dc) received on terminal pin E5 from loop amplifier CCA A14A2 is applied to the preselectors and output terminal E14. The voltage from E14 is applied to local oscillator CCA A8A2, the common tuning voltage ensuring that the preselector center frequency tracks local oscillator tuning. C35-R25, C38-R28, and similar resistive-capacitance pairs in the other preselector tuning lines decouple the tuning voltage tie-point from preselector RF. The tuning voltage is applied to the varactor diodes via isolation resistors R23, R24, R26, R27, and similar resistors in the other preselector circuits. Since the varactors are reverse biased by the tuning voltage, there is no dc current through the resistors and the dc voltage is not reduced, but RF from the varactor circuit coming back onto the control line is greatly diminished.

2-7.9. Local Oscillator CCA A8A2. (See figure FO-17.) Local oscillator CCA A8A2 contains a band-select logic decoder circuit and four varactor-tuned local oscillators. Each oscillator operates over a range 30 MHz or 10.7 MHz higher than the center frequency of one of the preselectors on CCA A8A1. The offset is required to produce the necessary IF when the two signals are mixed. The decoder circuit converts 2-bit BCD select logic (an additional bit is available but not used) from timing controller CCA A3 to a one-of-four output that activates one oscillator on this assembly and its corresponding preselector on CCA A8A1. The output of the active oscillator is routed by a pin diode switch to an amplifier. The amplifier signal is applied to a power splitter, from which it is routed to frequency converter ECA A13 and to first IF mixer CCA A8A3.

2-7.9.1. BCD-to-Decimal Decoder. BCD-to-decimal decoder-driver U4 converts the 2-bit BCD code received from timing controller CCA A3 on terminals E14, E15, and E16 to an inverted one-of-four format. The outputs of U4 are applied to the four oscillator circuits and to inverting switch-driver transistors Q5 thru Q8. The truth table for U4 is shown in figure FO-17. Logic low (0 V) on one of the U4 output lines activates the corresponding oscillator and also causes the corresponding switching transistor to saturate. The saturated transistor applies +10 V dc from reference diode VR1 to its output line. A logic high (+11 V dc) on a U4 output line deactivates the corresponding oscillator and causes the corresponding switching transistor to turn off, and -15 V dc from the off transistor collector circuit appears on the output line. The switching tansistor outputs on terminal pins E1 thru E4 are routed to RF preselector CCA A8A1. The 6.8-kΩ resistor in series with the base of each switching transistor limits forward bias current to prevent damage to the transistor.

2.7.9.2. Voltage-Controlled Local Oscillator. Voltage regulator U1 provides +11 V dc to all of the oscillator circuits. This well-regulated operating voltage ensures stable outputs from the oscillators. The four ranges covered by the local oscillators are 29.7 MHz to 51.7 MHz, 49.7 MHz to 71.7 MHz, 89 MHz to 131 MHz, and 129 MHz to 181 MHz, with 1 MHz overlap utilized in the narrow sweep mode. Except for frequency-related component values, the four circuits are essentially identical and the 129 MHz to 181 MHz oscillator is described as representative of all four circuits.

When the oscillator-select voltage for this oscillator is high (approximately +11 V dc), no current flows through bias divider R30-R31 and +11 V dc is applied to the base of Q4. Q4 is thus biased off and no oscillation can occur. Output pin diode CR 12 is also reverse biased by the select voltage, thus isolating the disabled oscillator circuit from the common tie-point so that it does not load down the active oscillator.

When the oscillator-select voltage from U4 is low (0.4 V dc maximum), divider R30-R31 provides approximately +3.6 V dc forward bias to the base of Q4, thus enabling the oscillator. Output pin diode CR12 is also forward biased by the select output of U4 so that it presents a low impedance that permits the oscillator output signal coupled by C42 to be applied to the output circuit via the common tie-point.

The oscillator circuit is a common-based LC bridge arrangement, with feedback from the bridge phase-shift network applied to the emitter of Q4. Capacitor C39 sets the range within which varactor diodes CR10 and CR11 may sweep the frequency. The tuning voltage received on terminal pin E17 (see sheet 1 of figure FO-17) from the loop amplifier (ECA A14 via RF preselector CCA A8A1) is applied to the varactors via isolating resistor R35. Since the varactors are reverse biased and the tuning voltage line is capacitively decoupled from RF, R35 does not attenuate the tuning voltage but does prevent RF from getting back onto the tuning voltage line. The tuning voltage range is from about +3.5 V to 26 V, but the frequency does not track linearly. However, because similar varactor tuning is used in the RF preselector, the offset oscillator frequency does track the preselector center frequency.

2-7.9.3. Output Circuit. The output signal level is adjusted slightly by the attenuator comprising R39, R40, and R41. The signal is then amplified by U2 and adjusted further by the attenuator comprising R43, R44, and R45. The signal is finally amplified by U3 and applied to RF transformers T5 and T6. T5 and T6 serve together as a power splitter that provides one output to IF mixer CCA A8A3 and another output to power splitter T7. One output of T7 is applied to frequency converter ECA A13, and the second output is routed to a test jack for monitoring during test and alinement.

2-7.10. IF Mixer CCA A8A3. (See figure FO-18.) The band-limiter RF signal received on pin E3 from RF preselector CCA A8A1 is mixed with local oscillator CCA A8A2 output received on pin E1, by doubleblanced mixer U2. The mixer output is applied to a diplexer circuit composed of L1 thru L4, C1 thru C4, and R1. The lower section of the diplexer, comprising L2, L3, C3, and C4, is a 37-MHz low-pass filter; the upper section, comprising L1, L4, C1, and C2, is a 37 MHz high-pass filter. Amplifier U1 provides a 50-Ω impedance for mixer output components above 37 MHz. Therefore, the diplexer circuit presents a constant 50-Ω wide-band load to the mixer. The low-pass filter output is amplified by approximately 10 dB by U1, and again filtered by a three-pole, 42-MHz low-pass filter consisting of L5, C6, and an 82-pF capacitor connected to the output but not mounted on the CCA. The mixer output is applied to IF amplifier ECA A9 for filtering and amplification. The mixer gain is 3 dB minimum, image rejection is 75 dB minimum, and IF rejection is 50 dB minimum.

2-7.11. IF Amplifier ECA A9. (See figure FO-19.) The IF amplifier contains a 30/10.7-MHz converter, band-pass filters, amplifiers, and diode switches. If the IF signal from IF mixer CCA A8A3 is 30 MHz, IF select logic received from timing controller CCA A3 routes the signal through the 30/10.7-MHz converter by means of diode switches. The converter is bypassed if the IF signal is already 10.7 MHz. The 10.7 MHz IF signal is then amplified and routed by diode switches through a bandpass filter selected by the sweep width switch on the display unit. In the ±10-MHz position, the signal is routed through a 100-KHz bandwidth filter; in the ±1 MHz position, the signal is routed through a 15-kHz bandwidth filter. The band limited 10.7-MHz IF signal is finally amplified and applied to logarithmic amplifier ECA A10. The overall IF gain is +10 ±3 dB.

2-7.11.1. Converter Switching Circuit. The second bit (2^1) of the VCO select code, received on terminal E3 from timing controller CCA A3, is at logic low when the IF signal received on terminal E1 is 10.7 MHz (bands 1 and 2) and at logic high when the IF signal is 30 MHz (bands 3 and 4). Transistor switches Q5, Q6, and Q7 convert this logic bit as required to operate switching diodes CR1 thru CR7. The diodes operate in groups to route the signal through, or to bypass, the 30/10.7-MHz converter circuit. By connecting each pair as high-ratio voltage dividers, in the off condition, the low impedance of the forward-biased diode shunting the load prevents a relatively high load impedance from defeating the isolation obtainable from the reverse-biased series diode. In the on condition, however, the shunt diode presents high impedance and does not interfere with the signal passed by the low-impedance series diode. Chokes L2, L4, and L7 permit the dc switching voltages to be applied to the diodes while preventing the IF signal from getting back onto the control lines. Chokes L1 and L3 provide ground return paths for the switching-diode bias current.

A logic low input on terminal E3 turns on Q7 and turns off Q6. Q6 in turn turns off Q5. The output from Q7 is therefore +5 V dc and the output from Q5 is -15 V dc. These voltages turn off diode switches CR2 and CR7 and turn on CR1 and CR6, isolating the 30/10.7-MHz converter from the signal path, and turn on diode switch CR3 and CR5 and turn off diode CR4, permitting the 10.7-MHz IF signal to be applied directly to amplifier Q8. Conversely, a logic high input on terminal E3 turns off Q7 and turns on Q5 so that the output of Q7 becomes -15 V dc and the output of Q5 becomes +5 V dc. These voltages turn on switches CR2 and CR7 and turn off CR1 and CR6, routing the signal through the converter circuit, and turn off switches CR3 and CR5 and turn on CR4, isolating the converter from the input circuit.

2-7.11.2. 30/10-MHz Converter. The 30-MHz IF signal passed by diode switch CR2 is filtered by crystal bandpass filter FL4 to remove unwanted out-of-band components, then amplified by tuned amplifiers Q1 and Q2 for application to the RF input of mixer A1. L5 and L6 provide input and output impedance matching for the crystal filter. A crystal oscillator comprising Q4, Y1, and associated passive components generates a 19.3-MHz signal, which is amplified by tuned amplifier Q3 and applied to the local oscillator input of the mixer. Variable capacitor C22 permits peaking of the oscillator tuned circuit. The mixer output is applied to tuned amplifier Q8. Note that when the converter is bypassed, the local oscillator is disabled by the -15 V dc switch-diode control voltage from Q5. When the signal is routed thrugh the converter, on the other hand, +5 V dc from Q5 forward biases Q5 and permits normal operation of the oscillator circuit. Disabling the oscillator prevents unneccessary noise from getting into the bypass IF line.

2-7.11.3. Bandpass Filters. The tuned drain circuit of common-gate amplifier Q8 provides some prefiltering of the direct IF input or the mixer output, but major filtering is performed by crystal filter FL5 or FL6. Switching diodes CR8 thru CR15 route the signal through FL5 when the bandwidth switch is in the ±10 MHz position and route the signal through FL6 when the bandwidth switch is in the ±1 MHz position. The input from the band switch, received on terminal pin E8, is logic low then in the ±10-MHz sweep mode and logic high when in the ±1-MHz sweep mode. These logic levels are converted as required by transistor switches Q9, Q13, and Q12 to the levels necessary to operate the diode switches. Chokes L9 thru L12 permit the dc switching voltages to be applied to the diodes while preventing the IF signal from getting back onto the control lines. Chokes L8 and L13 provide ground return paths for the switching-diode bias current. L14 and L15 provide input and output impedance matching for FL6; FL5 is matched internally.

A logic low input on terminal E8 turns on Q9 and turns off Q13. Q13 in turn turns off Q12. The output from Q9 is therefore +5 V dc, and the output from Q12 is -15 V dc. These voltages turn off diode switches CR12 and CR15 and turn on CR13 and CR14, isolating FL6 from the signal path, and turn on diode switches CR8 and CR11 and turn off CR 9 and CR10, permitting the signal to be filtered by 100-kHz bandwidth filter FL5. Conversely, a logic high input on terminal E8 turns off Q9 and turns on Q12 so that the output of Q9 becomes -15 V and the output of Q12 becomes +5 V dc. These voltages turn off diode switches CR8 and CR11 and turn on CR9 and CR10, isolating FL5 from the signal path, and turn on diode switches CR12 and CR15 and turn off CR13 and CR14, permitting the signal to be filtered by 15-kHz bandwidth filter FL6.

2-7.11.4. Output amplifier. The filtered 10.7-MHz IF signal is applied to output amplifier Q11 via output amplifier driver Q10. A broadly tuned impedence matching network is included in the collector circuit of Q11. The output from the impedance matching network is applied via dc blocking capacitor C45 and terminal E9 to logarithmic amplifier ECA A10.

2-7.12. Logarithmic Amplifier ECA A10. (See figure FO-20.) Logarithmic amplifier ECA A10 contains a logarithmic IF amplifier, linear detector, and video output amplifier. Converting the signal to logarithmic form permits the vertical scale on the CRT display to be calibrated in decibels.

Logarithmic amplification is achieved by a curve-fitting scheme. Six wide-band amplifiers (see figure 2-6) are driven at successively higher IF signal levels. The amplifier outputs are summed by a resistive summing network. As the input signal level increases logarithmically, the successive stages will one by one limit, causing the output of the summing network to increase linearly until the last amplifier in the chain saturates. The amplifiers exhibit soft saturation characteristics that prevent too abrupt transition from one stage to the next, thus giving a smooth overall response.

The six summed amplifiers referred to in the preceding paragraph comprise emiter-coupled differential amplifier ICs U4A, U4B, U5B, U6A, U6B, and U3B. The amplifiers are operated single-ended. Q1 and Q2 are operated as common-base unity-gain buffers for the first three summed-amplifier inputs. Successively larger IF signal levels provided to the summed amplifiers are produced by tandem-connected wideband amplifiers U1, U2, and U3A and attenuators R47-R48 and R66-R67. U1 and U2 each provide 30 dB of gain, U3A provides 15 dB of gain, and the attenuators each provide 15 dB of attenuation. Therefore, the signal level to successive summed amplifier inputs steps in 15-dB increments. R40, R75, R81, R57, R65, and R24, connected to the summed amplifier outputs, are weighted summing

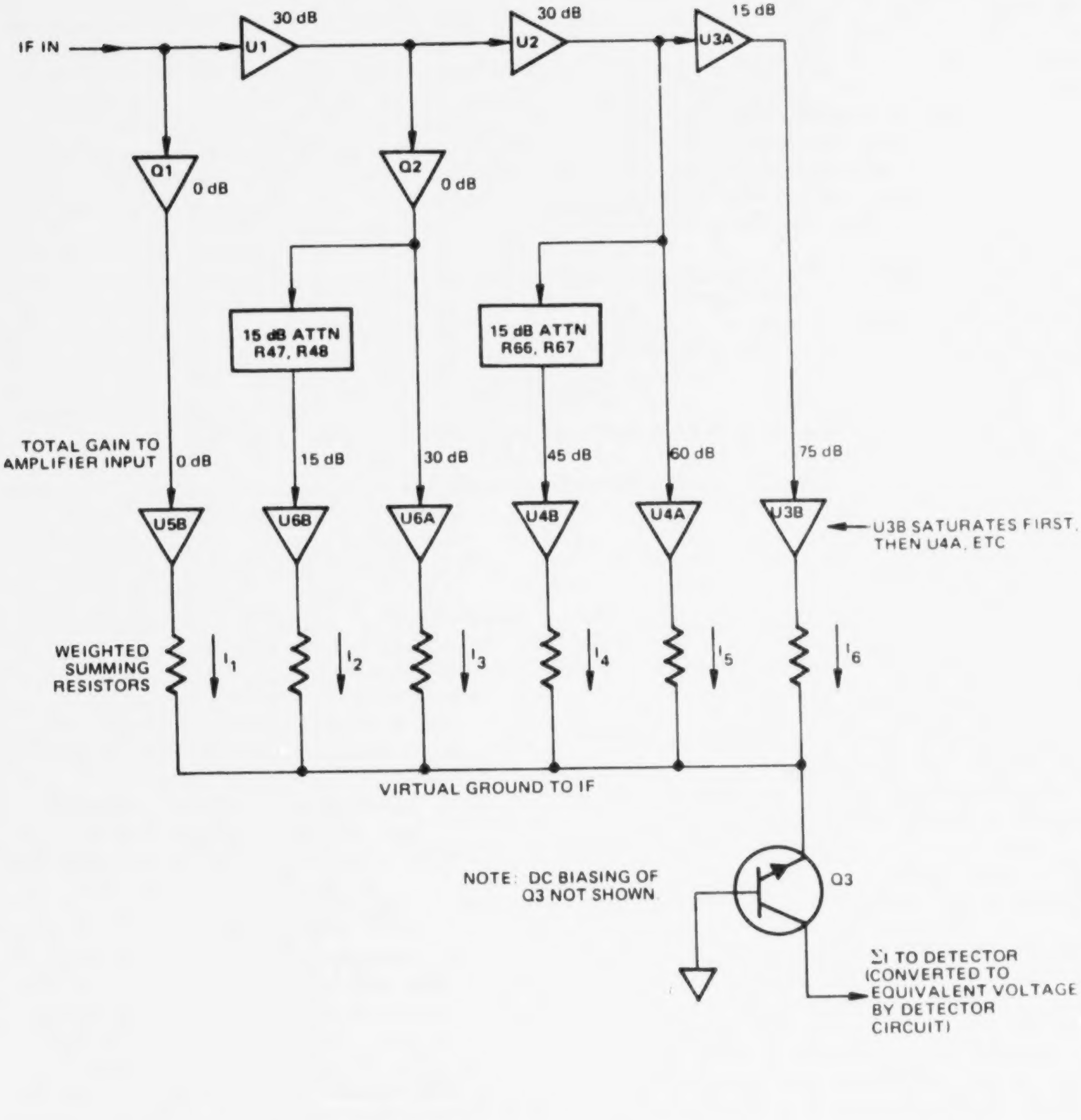


Figure 2-6. Logarithmic IF Amplifier Simplified Block Diagram

resistors. Each resistor supplies current proportional to the voltage output of the corresponding amplifier to the emitter of common-base transistor Q3. Virtually all of the IF signal current, compromising a sum of the amplifier outputs, reaches the collector of Q3 for application to the linear detector circuit. Lowpass filters L4-C29 and L5-C36 eliminate the possibility of high frequency feedback leaking into the early stages.

U7, Q4, Q5, CR1, and CR2 combine to form a linear detector circuit. The logarithmic IF signal is amplified by U7, with reference to a video bias voltage, and the outputs of U7 are differentially amplified by Q4 and Q5 to maintain balance. The output of Q4 is detected by diode CR2 and the dector output is smoothed by low-pass filter C56-L6 prior to application to output amplifier U9. The detected output from CR1 and CR2 is also returned as bias to one side of differential input amplifier U7. The bias voltage maintains overall linearity of the circuit by controlling the gain of U7 through negative feedback.

The filtered video signal is amplified by operational amplifier U9 and applied to the ADC circuit on CCA A5. The adjustable ratio of R100 to R99 determines the gain of the output amplifier, and R103 provides a dc offset that sets the baseline of the following ADC circuit.

U7 is self-biased by base current through R89 and R98. To compensate for drift of the video output offset caused by temperature - dependent changes in the U7 base current, the bias voltage developed across R89 is buffered by U8 and applied to one side of offset control potentiometer R103. L7 and C67 isolate the logarithmic IF signal from the self-bias sample line.

2-7.13. RF Test Generator ECA A11. (See figure FO-21.) The RF test generator circuit on ECA A11 employs a step-recovery diode to help generate a comb function (series of sharp spikes) rich in harmonics of the fundamental driving frequency. The sweep width switch on the panoramic indicator selects a fundamental of 2 MHz in the ±10 MHz position and 0.2 MHz in the ±1 MHz position. The output is applied to the input of RF preselector CCA A8A1. Therefore, when in the frequency marker mode and sweeping ±10 MHz, spikes at 2-MHz intervals appear on the CRT display. Similarly, when sweeping ±1 MHz, spikes at 0.2-MHz intervals appear. When in the 60-MHz test mode, the 60-MHz test generator circuit produces a signal that is applied to the RF preselector input to provide a 60-MHz picket on the CRT display.

2-7.13.1. Reference Oscillator and Divider. Crystal Y1, transistor Q9, and associated passive components combine to form a Colpitts oscillator that operates at 2 MHz. Trim capacitor C2 permits peaking of the oscillator tuned circuit. The oscillator output is amplified by Q8 and applied to switching transistors Q7, which converts the sine wave to a square wave. The 2-MHz square wave is applied to U1 and on NAND gate U2C. U1 is a decade counter that, when enabled by the output of Q6, divides the frequency by 10, to 0.2 MHz.

2-7.13.2. Logic Circuit. A logic high input at terminal E4 from the sweep width switch turns on transistor Q5, which in turn saturates Q6. Q6 provides +5 V dc to U1, permitting U1 to operate and provide a 0.2-MHz square-wave signal to NAND gate U2A. The logic high input at terminal E4 also enables U2A and is inverted by U2D so that NAND gate U2C is disabled. The resulting logic high from U2C enables U2B so that the 0.2-MHz signal gated through U2A is applied to Q3 and Q4. Conversely, when the input at terminal E4 is logic low, Q5 and Q6 are off and disable U1. The logic low also disables U2A, and U2C is enabled via inverter U2D. U2B is enabled by the logic high output of disabled U2A. Therfore, the 2-MHz square-wave signal from Q7 is passed by U2C and U2B to Q3 and Q4.

2-7.13.3. Driver Circuit. Q3 and Q4 are identical drivers for complementary step-recovery diode driver tansistors Q1 and Q2. Schottky diodes CR1 and CR2 permit the transistor to switch rapidly by preventing saturation. Similarly, Schottky diodes CR4 and CR5 permit fast switching of Q1 and Q2 by preventing saturation. Switching diodes CR6 and CR4 provide fast charge paths for the coupling capacitors on positive-going and negative-going half cycles, respectively, of the driving square waves from Q4 and Q3. On these half cycles, Q1 and Q2 are off. Therefore, on the opposite half cycles, negative-going for Q2 and positive-going for Q1, the discharging of the coupling capacitors through R27 and R24 produces forward-biasing basemitter voltages for Q2 and Q1 starting at the beginnings of the negative-going and positive-going transitions of the driving square waves, thus ensuring prompt switching of the driver transistors. The output from the driver circuit is a +5 V dc to -15 V dc square wave at 2 or 0.2 MHz, depending on the sweep width.

2-7.13.4. Step-Recovery Diode. Step-recovery diode CR 7 is forward biased on the positive half-cycle of the driver waveform and reverse biased on the negative half-cycle. On the positive half-cycle, a substantial number of minority carriers are stored near the junction of the diode. However, because of heavy doping of the region near the junction, minority carrier storage does not extend very far out into the semiconductor materials. Because of this restriction of stored charge, when recombination occurs upon reverse biasing of the diode, it discharges rapidly. When the diode is reverse biased but still charged, it presents a low impedance. When the charge is depleted, the impedance is high. CR7 thus produces negative pickets of very short duration as shown in figure 2-7.

2-7.13.5. Output Circuit. A low-pass filter comprising C17, C18, and L4 cuts off above the required 150-MHz frequency output range of the circuit. A 14-dB pad comprising R29, R30, and R31 reduces the output to a level suitable for application to the RF input circuit on RF preselector CCA A8A1.

2-7.13.6. 60-MHz Test Oscillator. Module Y2 is the 60-MHz test oscillator. When the 60 MHZ TEST pushbutton on the panoramic indicator is pressed, it produces +5 V which is applied to the base of transistor Q10, turning Q10 on to ground pin 7 of Y2 and thus activating the oscillator. The crystal-controlled oscillator output

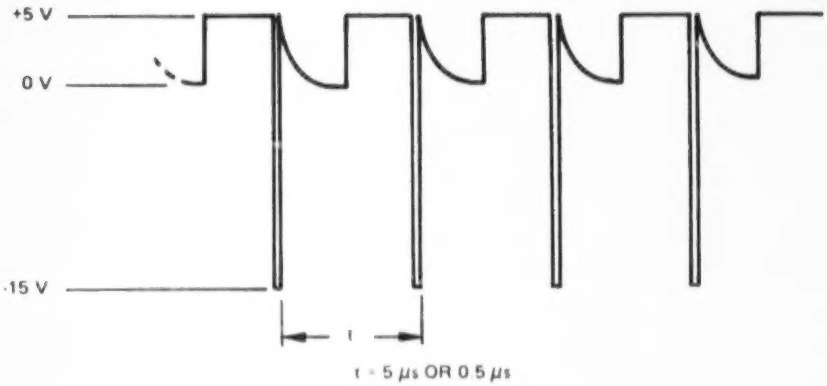


Figure 2-7. Step-Recovery Diode Output.

is injected into the RF input circuit through dc blocking capacitor C22 and isolation resistor R33. R33 also reduces TTL oscillator output levels to a low level suitable for the RF input circuit; the power level of the injected signal is approximately -48 dBm.

The +5 V dc power for this circuit, received on pin E8, is not switched with the +5 V dc power for the RF test generator circuit.

2-7.14. RF Oscillator ECA A12. (See figures FO-22 and FO-23.) RF oscillator ECA A12 consists of eight crystal-controlled oscillators, which are divided into two groups for activation by a 3-bit BCD code received from timing controller CCA A3. The outputs from the one or two active oscillators are applied to frequency converter ECA A13. Here, the signals are mixed with the local oscillator signal to produce the 25-kHz to 50-kHz loop IF.

2-7.14.1. BCD-to-Decimal Decoder. BCD-to-decimal decoder U1 converts the input code to an inverted one-of-seven form. Pair selection is made by the logic circuit consisting of hex inverters U2 and U3, four sections of hex inverter U4, and a wired-OR function at the outputs of U4A and U4B. Each of the eight output lines from the logic circuit is applied to an oscillator circuit. A logic low (0 V) on any of these lines enables the corresponding oscillators.

2-7.14.2. Crystal Oscillators. The eight crystal oscillators are Colpitts circuits, identical except for crystal frequencies and related component values. The oscillator associated with each output frequency is indicated in table 2-3. The outputs of oscillators Q3-Y3 and Q4-Y4 are connected in common to form a group A and the outputs of the remaining oscillators are connected in common to form group B. Only one oscillator from each group may be active at a time, while the inactive oscillators are isolated by diodes.

Refer to the oscillator circuit comprising Q1, Y1, and associated components (see figure FO-22 and FO-23). When the output from U4D of the logic circuit is high, essentially no current flows through bias-divider resistors R3 and R4 so that the bias divider presents +5 V dc to the base of Q1. Q1 is thus held off and the oscillator is disabled. The logic high output from U4D also reverse-biases diode CR1 to prevent the inactive oscillator circuit from loading down the active oscillator of the group. Choke L1 isolates the RF output circuit from the +5 V dc supply while applying bias to one side of CR1.

Table 2-3. RF Oscillator Frequencies

Select Code BCD	Loop RF, MHz			
	Frequency A (on E3)	Oscillator	Frequency B (on E1)	Oscillator
0	17.8375	Q3-Y3	16.5000	Q2-Y2
1	20.3375	Q4-Y4	16.5000	Q2-Y2
2	-	-	8.7500	Q5-Y5
3	-	-	11.2500	Q8-Y8
4	-	-	13.7500	Q7-Y7
5	-	-	16.2500	Q6-Y6
6	-	-	18.7500	Q1-Y1
7	-	-	-	-

When the output from U4D is low, bias divider R3-R4 presents forward bias to Q1 and the oscillator oscillates at the frequency determined by crystal Y1. C7 across the feedback phase-shift circuit permits peaking of the oscillator output. R1 and C1 provide +5 V dc supply decoupling, and C2 decouples the bias voltage to Q1. The logic low from U4D forward biases diode CR1 through R6, permitting it to pass the RF oscillator signal coupled by dc blocking capacitor C3 to the output circuit. R6 and C4 isolate the oscillator output signal from the control line. The remaining seven oscillator circuits function in the same manner.

2-7.14.3. Test Provisions. The fourth input bit to U1 is normally a logic low provided by inverter U4F, which permits the remaining three bits to select outputs 0 thru 6. For test purposes, all of the oscillators may be disabled unconditionally by grounding test point J1 with a clip lead. Any desired oscillator circuit may then be enabled without interference from the input code by grounding the corresponding test point (J2 thru J9) with a clip lead.

2-7.14.4. Start-Up Time. Because of tuning-loop-lock constraints, it is necessary for any given oscillator to start up, upon command, in a time shorter than that of the guiding voltage enable (14 ms). All of the oscillators should start up in at least 10 ms. This parameter can be maximized by adjusting the trimmer capacitors, if necessary. Particular attention may need to be paid to oscillator Q4 since this circuit is the only one containing a crystal that functions on the third overtone (which is less prone to start rapidly).

2-7.15. Frequency Converter ECA A13. (See figures FO-24 and FO-25.) Frequency converter ECA A13 translates the local oscillator output frequency to a corresponding loop IF frequency in the 25-kHz to 50-kHz range. Conversion is achieved by mixing the LO output with one or two outputs from the RF oscillator. In 20-MHz bands 1 and 2, conversion is carried out in two steps. For the remaining five bands, conversion is carried out in one step, as controlled by the RF oscillator output frequencies and the MSB of the band-select code from the control section. The functional block diagram, figure FO-25, indicates signal flow through the major circuits referred to in the following description and also contains a table listing the frequency ranges for each 20-MHz band.

2-7.15.1. LO Input Circuit and ECL Divider. The single-ended LO signal from local oscillator CCA A8A2 is converted by RF transformer T1 to a balanced differential signal that drives emitter-coupled logic (ECL) line receiver U1B. The LO signal is then divided by 8 by ECL dividers U2A, U3A, and U3B. The use of ECL in this part of the circuit is necessitated by the high frequency of the LO signal, particularly at the upper end of the band. The $\overline{Q}$ and Q outputs of the first divider stage are summed through R7 and R103 and averaged by filter R2, C13-C15. The average dc level is applied to the center-tap of T1 and serves to properly bias U1. The output of the ECL divider is capacitively coupled by C20 to the pin diode switching circuit. Note that the remaining ICs on the converter are TTL, and pin diode reverse bias is -15 V dc.

2-7.15.2. Pin Diode Switching Circuit. In bands 1 and 2, the LO/8 signal must be routed through the first mixer. For the remaining bands, the first mixer must be bypassed. This is achieved by means of a switching circuit comprising pin diodes CR1 thru CR6 and CR10 thru CR12, RF chokes L1 thru L5 and L9 thru L11, switching transistors Q2 and Q3, inverters U7E and U7F, and associated resistors and ac coupling capacitors.

In bands 1 and 2, the LO selects MSB logic low, which is inverted by U7E and again inverted by U7F, turns off Q3 and turns on Q2. The resulting -15 V dc output of Q3 reverse biases pin diodes CR4 and CR6 and forward biases CR5. Therefore, the first mixer bypass signal path is disabled. Conversely, the +5 V dc output of Q2 forward biases pin diodes CR1, CR3, CR10, and CR12 and reverse biases CR2 and CR11. The LO/8 signal thus passes via CR1 and CR3 to the symmetry adjust circuit preceding the first mixer, and the output of the mixer passes through CR10 and CR12 to the symmetry adjust circuit preceding the second mixer. The logic high output of U7E also enables NAND gate U4D of the first mixer symmetry adjust circuit.

In bands 3 thru 7, the LO select MSB logic high turns on Q3 and turns off Q2 via dual inverter U7. The resulting -15 V dc output of Q2 reverse biases pin diodes CR1, CR3, CR10, and CR12 and forward biases CR2 and CR11 so that the first mixer signal path is disabled.

The logic low output of U7E disables U4D to provide additional isolation of the first mixer. Conversely, the +5 V dc output of Q3 forward biases pin diodes CR4 and CR6 and reverse biases CR5. The LO/8 signal thus bypasses the first mixer via the signal path through CR4 and CR6.

2-7.15.3. Symmetry Adjust Circuits. The first mixer symmetry adjust circuit comprises Q4, U4, and U6. The second mixer symmetry adjust circuit comprises Q5, U9A thru U9D, and U10. The two circuits are essentially identical. The only difference in the two circuits is in the gating function of NAND gate U4D described above; otherwise the four stages of U4 function as inverters.

The signal applied to the feedback biased base of Q4 drives Q4 between cutoff and saturation, and the clipped inverted signal is applied to the first of tandem-connected inverters U4D, U4A, U4B, and U4C which serve to sharpen the rising and falling edges. Two outputs of the inverter chain, identical except for a 180-degree phase difference, are averaged by R27-C27 and R28-C28 and applied to the summing and reference inputs of integrator-connected operational amplifier U6. If the waveform is perfectly symmetrical, the two dc voltages applied to the integrator will be equal, and the integrator output will hold at the current level. If the waveform is not symmetrical, the two dc levels will not be equal and the integrator will integrate in a direction depending on the polarity and at a rate proportional to the difference of the two input voltages. The integrator output is returned as negative feedback to the base of Q4 through isolation resistors R24 and R29. This bias serves to maintain symmetry of the output waveform by balancing the negative-peak clipping (and saturation) points of Q4. When symmetry has been established, the integrator holds the bias constant. Clamp diode CR9 protects Q4 from excessive base current by preventing the bias voltage applied through R24 from exceeding +5.7 V dc. The symmetrical LO/8 signal is applied to the first mixer via parallel-connected Schottky inverter U5E and U5F, which provide drive while preserving waveform symmetry.

2-7.15.4. First Mixer and Bandpass Filter. In bands 1 and 2, the LO/8 signal is mixed with one output of RF oscillator ECA A12 as listed in the table on figure FO-25. The filter following the mixer, comprising T2, T3, L6, L7, L8, C34 thru C42, C77, C82, and C83, passes only the 14-MHz to 11.5-MHz difference-frequency band. The filter corner frequencies are 11.3 MHz and 14.2 MHz, which is sufficient bandwidth to pass the overlap range when in the narrow sweep mode. Maximum filter ripple is 2 dB. T2 and T3 provide input and output impedance matching for the filter.

2-7.15.5. First Mixer Output Buffer Amplifier. Isolation of the first mixer output filter, and amplification and drive are provided by emitter-coupled amplifiers U8A and U8B and associated external components. U8B provides no substantial voltage gain due to the loading of the symmetry adjust circuit which follows. Overall gain, due primarily to the first stage, is approximately 6 dB. The amplifier output is applied via the output section of the pin diode switch and the second mixer symmetry-adjust circuits, both described above, to the second mixer.

2-7.15.6. Second Mixer, Low-pass Filter, Amplifier, and Comparator. The LO/8 signal or the 14-MHz to 11.5-MHz signal from the first mixer is mixed in the second mixer with a second RF oscillator output, as indicated in the table on figure FO-25, to produce a difference-frequency output in the 2.5-MHz to 5-MHz range. Note that the band inversion of bands 1 and 2 by the first mixer is reversed by the second mixer. The second mixer does not invert bands 3 thru 7, however. The low-pass filter following the second mixer, comprising L12, L13, and C59 thru C64, passes only the difference-frequency band below 5 MHz. The filter output is amplified by approximately 6 dB by tandem-connected differential amplifiers U11A and U11B, and applied to comparator U12. U12 converts the amplifier output to a digitally compatible signal suitable for driving the following divider stage.

2-7.15.7. Frequency Dividers and Output Dividers. The output of the second mixer output amplifier is frequency-divided by 10 by U13, and again divided by 10 by U14. The 250-kHz to 500-kHz LOOP IF ÷ 10 signal from U13 is outputted via current driver U16 (not used in this application). The 25-kHz to 50-kHz LOOP IF signal from U14 is applied to frequency discriminator CCA A14A1 via current driver U15. Current drivers U15 and U16 are complementary emiter-follower circuits that provide unity-gain low-impedance drive for the IF and IF ÷ 10 signals.

2-7.16. Frequency Disciminator CCA A14A1. (See figure FO-26). Frequency disciminator CCA A14A1 converts the 25-kHz to 50-kHz loop IF square wave, received from frequency converter ECA A13, to a dc voltage linearly proportional to the frequency. It does this by generating pulses of fixed width and height, synchronized with the input frequency. The pulses are filtered by a low-pass filter to produce the disciminator dc output voltage. Linearity is ensured by the use of a pulse counting scheme and a referenced supply voltage to generate pulses of constant width and height.

2-7.16.1. Width Generator. The 25-kHz to 50-kHz loop IF square wave is first converted to a 50-ns, pulse waveform by one-shot U1. This signal is then applied to the clock input of J-K flip-flop multivibrator U2A. Connected as shown, U2A would divide the frequency by 2, but is prevented from doing so by a clear input that arrives before the next signal pulse occurs, as will be explained below. Upon the low transition of the clocking input pulse on pin 1, the Q output of U2A goes high, enabling NAND gate U8A so that it passes 16-MHz pulses generated by the crystal oscillator comprising Q2, Y1, and associated components. The crystal oscillator is a Colpitts circuit, with C15 providing a small frequency trim range. Transistor Q1 is driven to cutoff by the oscillator output so that the overall oscillator circuit output is a pulse waveform.

Normal multivibrator action of U2B is prevented by fixed J, K, and clock (CP) inputs. Instead, this stage is operated similarly to a set/reset flip-flop by pulses applied to the preset and clear inputs. The first 16-MHz pulse passed by U8A presets U2B so that its Q output goes high. The output remains high until a clear pulse is received from U3. The U2B logic high output enables NAND gate U8C so that it passes a train of crystal-controlled 16-MHz pulses to binary counter U7. Note that U8C is gated-on precisely at the leading edge of a crystal oscillator output pulse so that the pulse train starts with an accurately determined low transition that begins clocking binary counter U7. U7 divides the 16-MHz pulse-train frequency by 16, providing a precise 1-MHz square wave. This 1-MHz square wave is applied to J-K flip-flop U5 and to binary counter U4. The D output of U4 goes high coincidently with the eighth low transition of the 1-MHz train, which occurs 8 μs after the beginning of the cycle, and goes low again on the 16th low transition, which occurs 16 μs after the beginning of the cycle. This low transition from the D output of U4 triggers one-shot U3, which in turn produces a 50-μs low-going pulse that clears U2A and U2B to stop the counting cycle until the beginning of the next period of the IF input signal.

NAND gate U6A combines the four counter stage outputs of U4 to produce a low-going 1-μs pulse that repeats at the IF input frequency. U6B inverts this pulse for application to the K input of J-K flip-flop U5. U5 is termed master-slave because the J and K information is loaded into the master section when the clock input goes high and is transferred to the slave section and the outputs when the clock goes low. The output of U6B is initially low and remains low until the 15th low transition of the 1-MHz square wave train. Therefore, J = 1, K = 0 are loaded into the master section of U5 on the first high transition of the train, which occurs 0.5 s after the beginning of the cycle. The Q output of U5 goes high (it was initially low from preceding cycle) on the next low transition of the 1-MHz train. On the 16th and last high transition of the train, the output of U6B is high. Therefore, on the following (16th and last) low transition, the Q output of U5 changes state and returns to logic low. Since the low-going edges of the highly accurate 1-MHz square wave from U7 clock U5, the Q output of U5 is a 15-μs pulse having very accurate and stable width and repeating at the IF input frequency.

2-7.16.2. Fixed Amplitude Driver. The output pulses from U5 are applied to the driver circuit comprising Q3 thru Q7 and associated components. The driver circuit rigidly determines the output pulse amplitude while preserving the pulse width. Note that the Q output of U5 is applied in common to the input circuits of Q3, Q6, and Q7. Assume an initial condition in which the output from U5 is in a stable low state following a low transition. The short time constants of the resistive-capacitance input coupling to Q3 and Q7 (C23-R21 and C34-R27) permit Q3 and Q7 to be turned on only during low transitions of the input waveform. Therefore, in this initial stable condition, there is no current through R21 and R27, and Q3 and Q7 are biased-off by 0 base-to-emitter voltages. Also, the low state coupled through C26 and R24 (speed-up capacitor C27 is now discharged) to the base of Q6 holds Q6 off. With Q3, Q6, and Q7 off, +10 V dc from reference diode VR1 holds output-switching P-channel IGFET Q4 off through R22, and CR2 is reverse-biased while 0 V is applied via R26 to the gate of output-switching JFET Q5, holding it on. Therefore, the output at test point J5 is 0 V.

Upon the high transition of the Q output of U5, Q6 saturates, providing -15 V dc to the gate of Q4 and to the gate of Q5 via diode CR2. Q4 therefore turns on and Q5 turns off, causing the output at test point J5 to go to the +10 V dc reference level supplied to the drain of Q4. Speed-up capacitor C27 provides increased drive during the transition to preserve the leading edge characteristics. Q3 and Q7 remain off. When the output of U5 returns low, Q6 turns off, with CR1 preventing the negative resistive-capacitance spike generated by C26 and R25 from damaging Q6. Q4 and Q7 momentarily turn on to provide a speed-up function to compensate for the relatively slow turnoff time through Q6. During the low transition of the U5 output, +10 V dc is applied directly to the gate of Q4 through Q3, and ground (0 V) is applied directly to the gate of Q5 through Q7, quickly turning the respective FETs off and on so that the output at test point J5 goes to 0 V.

2-7.16.3. Smoothing Filter. For each cycle of the IF input, the output at test point J5 is exactly +10 V dc for precisely 15 µs, and 0 V for 5 to 25 s, depending on the frequency. The five-section low-pass output filter comprising R23, L4, C28, and C29 on this CCA And L1 and C1 on the loop amplifier CCA A14A2 convert the pulses to a positive voltage that increases with increasing IF frequency (3.75 to 7.5 V). This voltage is inverted and applied to a summing junction to complete the feedback loop.

2-7.17. Loop Amplifier CCA A14A2. (See figure FO-27). Loop amplifier CCA A14A2 contains the local oscillator loop/tuning ramp summing circuit, integrator circuits that determine the local oscillator loop response characteristics, and a preset circuit that sets up initial conditions when an abrupt tuning change occurs. The output from frequency discriminator CCA A14A1 and the frequency control voltage from receiver sweep ECA A15 are applied to opposite legs of the summing circuit. If the two voltages differ, an error voltage results that is applied to the integrator circuits. The integrated output is amplified and applied as a tuning voltage to the local oscillator, and is also applied to RF preselector CCA A8A1 so that the preselector tracks the local oscillator frequency. The local oscillator frequency is down-converted to the loop IF band by frequency discriminator CCA A14A1. The discriminator output is returned to the loop amplifier summing circuit. Since this is a high-gain negative feedback loop, the tuning voltage will tune the oscillator to the frequency which makes the error equal to 0, so that the discriminator output voltage virtually equals the frequency control voltage. The loop response is such that the local oscillator frequency will closely follow a ramping frequency control voltage.

2-7.17.1. Summing Circuit. L1 and C1 are the last section of the discriminator output low-pass filter, U11 is a noninverting unity-gain buffer amplifier, and U1 is a near-unity gain inverting amplifier. R29 and R30 provide a small gain adjustment range for tuning calibration. R10 and R11 are opposite legs of a resistive summing divider, to which the frequency control voltage from terminal E16 and the inverted discriminator voltage are applied. The error voltage from the summing divider is applied to the summing (minus) input of operational amplifier integrator U2. The plus input of U2 serves as the ground reference point for the summing junction.

2-7.17.2. Integrators. When not in an abrupt tuning change interval of the sweep, preset switches U3 and U4 are open, permitting integrator-connected operational amplifers U2 and U5 to twice integrate the summing circuit output. R10, R11, R15, R19, C19, R23, and C20 provide the integrators with the necessary frequency response characteristics for accurately tracking the ramp. The output from U5 is amplified by noninverting amplifier U6, and the amplified output is applied to local oscillator CCA A8A2 via complementary-emitter-follower IC U10. The gain of U6 is somewhat exponential as provided by R5 and CR9. This counteracts the exponential voltage-frequency requirements of the varactors on A1A8, A2A8 and allows the loop to remain a linear system.

Back-to-back connected diodes CR1 and CR2 prevent the input to U2 from exceeding approximately ±0.6 V, thus preventing excessive loop recovery time in case of a momentary out-of-range condition. CR3 thru CR6 and VR1 perform similar functions at the respective circuit points to which they are connected. The progressively increasing maximum loop voltage requires correspondingly greater clipping points. CR7, CR8, VR4, and VR5 limit the tuning voltage to below 27 V, which is important because some of the varactors on CCAs A8A1 and A8A2 will be damaged by voltages greater than 30 V.

2-7.17.3. Guiding-Voltage Preset Circuit. If during a sweep it is necessary to change local oscillator or RF oscillator bands, the sweep is stopped (dead time) to permit the tuning voltage to be preset and then stabilized so that the sweep resumes at the appropriate point in the current local oscillator range, thus ensuring continuity of tuned frequency vesus sweep voltage. This preset function is achieved by means of analog switches U3, U12, and U4, which preset the integrator circuit on command from timing controller CCA A3. A similar action occurs at the end of a sweep, even if the band is not changed.

During dead time (82 ms), a guiding voltage enable pulse (14 ms) from timing controller CCA A3 is received on terminal E1. This pulse directly closes analog switch U4 and the fourth section of analog switch U3 and enables BCD-to-decimal decoder U7. U7, when enabled, decodes the 3-bit XO code received from CCA A3 on terminal pins E5, E6, and E7. NAND gates U8A, U8B, U8D, U9B, and U9A combine the decoded outputs so that an overall OR function is performed which closes sections of anlaog switches U3 and U12. These in turn apply the appropriate reference voltage to U5 as a function of the frequency control voltage at E16 from receiver sweep ECA A15 (table 2-4). U4, when closed, shorts integrator components C11, C19, and R19, and the fourth section of U3 shorts integrator components C8. The output of U2 therefore returns to a starting point of 0 V, and the output of U5 becomes equal to the preset voltage applied to the noninverting (plus) input. The output of U5 precharges C11 and is amplified by U6 to put the VCO (CCA A8A2) close to its starting point. At this point, the discriminator output should be close to the frequency control voltage.

Then, when the guiding voltage is disabled (after 14 ms), the loop can quickly settle to the correct value because it was already close.

Table 2-4. Guiding Voltages with E16 Equal to 4.0 V

Band	Guiding voltage	Tuning voltage (Guiding voltage x 12)
1	0.14	5.1
2	0.14	5.1
3	0.13	4.0
4	0.28	8.6
5	0.13	4.0
6	0.28	8.6
7	0.60	25.3

2-7.18. Receiver Sweep ECA A15 (with CCA A15A1, P/N 10-123554-1). (See figure FO-28.) Receiver sweep ECA A15 converts the sweep address counter and RAM write counter inputs, received from sweep address CCA A2 and memory address CCA A4, respectively, to corresponding voltages for sweeping the local oscillator via loop amplifier CCA A14A2. The 150-MHz limit comparator and a +10 V dc reference voltage regulator are also included on this assembly.

2-7.18.1. Wide Sweep Digital-to-Analog Converter. DAC U2 converts the digital input from the counter on sweep address CCA A2 to a corresponding analog current applied to the summing input (pin 2) of operational amplifier U3. U3 converts this current to a corresponding voltage. The operational feedback loop is through U2 via pin 10. VR1 and VR2 are 6.2-V reference diodes that provide positive and negative reference voltages to R11, so that R11 may serve as a zero set adjustment by providing referenced offset current to the summing junction of U3 via R13. Back-to-back diodes CR1 and CR2 protect U2 and U3 by preventing the summing junction from exceeding approximately ±0.7 V. The summing junction voltage should in normal condition be essentially 0. Potentiometer R8 permits calibration of full-scale output. The output of U3 is 0 V for zero binary input and +10 V dc for maximum binary input (19.99 MHz) applied to the digital-to-analog converter.

2-7.18.2. Narrow Sweep Digital-to-Analog Converter. DAC U5 converts the digital input from the RAM write address counter on memory address CCA A4 to a corresponding analog current applied to the summing input (pin 2) of operational amplifier U6. U6 converts this current to a corresponding voltage. The operational feedback loop for U6 is through U5 via pin 16. Back-to-back diodes CR6 and CR7 protect U5 and U6 from excessive voltage by preventing the summing junction from exceeding approximately ±0.7 V. Normally, the summing junction voltage is essentially 0. In normal operation, CR5 is reverse biased, and +15 V dc (less one diode drop) is applied to the positive supply voltage input of U5. If the +15 V dc supply voltage goes to near 0, due to failure or momentary short circuit on another assembly, for example, CR4 becomes reverse biased and +5 V dc (less one diode drop) is provided to the positive supply input of U5. This is necessary because U5 could be damaged if the positive supply voltage were allowed to become 0 with digital inputs being applied. The +10 V dc reference voltage generated by U1 on this assembly is divided down to +6.4 V dc by R16, R17, and R18, and buffered by U4. This voltage serves as a reference for bipolar symmetry calibration potentiometer R21. R23 provides calibration of full-scale output range. The overall output ramp is symmetrical about 0 and of sufficient amplitude to sweep the local oscillator 1 MHz about center frequency (approximately ±5 V dc). Inverters U12 and U13 convert the 10-bit positive-logic input to negative-logic necessary to operate the converter.

2-7.18.3. Summing Circuit. Operational amplifier U8 is connected in a unity-gain summing configuration. In the wide sweep operating mode, logic low from the sweep width switch causes analog switch U7 to ground one side of summing input resistor R29. Summing amplifier U8 therefore only inverts the ramp output of U3. In the narrow sweep mode, however, the sweep address counter on U2 provides a fixed center-frequency output, which causes U2 and U3 to provide a corresponding fixed dc voltage to one input (R28) of the summing amplifier. The input from the sweep width switch in this mode is logic high, which causes analog switch U7 to apply the ramp output of U5 and U6 to the second input (R29) of the summing amplifier. The signal from the narrow sweep mode DAC has a weighting equal to one-tenth the signal from the wide sweep mode DAC as determined by the ratio of R29 to R28. Therefore, the output of U8 is an inverted sum comprising the center-frequency fixed voltage and the superimposed ramp signal.

2-7.18.4. Offset and Scaling Circuit. Operational amplifier U9 and complementary emitter-follower-driver IC U10 are connected in a configuration that attenuates, reinverts, and dc offsets the ramp signal output of U8 while providing sufficient drive for tuning the local oscillator via loop amplifier CCA A14A2. The ratio of R37 to R34 sets the attenuation at 37%, and the referenced dc voltage applied to the positive input (pin 3) of U9 sets the offset at +3.75 V dc. Therefore, the tuning voltage applied to CCA A14A2 and to U11 is, in the wide sweep mode, a positive ramp signal (see figure 2-3) that varies between the lower peak value of 3.75 V dc and the upper peak value of 7.5 V, with band-change dead-time periods as determined by the programming of the sweep address counter on CCA A2 and another dead time at the beginning of each sweep. This ramp sweeps the receiver tuning section over a sector ±10 MHz about center frequency. In the narrow sweep operating mode, the output is a dc voltage corresponding to the center frequency, upon which is superimposed a ramp of 10% (0.375 V) of the wide sweep mode peak-to-peak voltage. This composite signal sweeps the receiver section ±1 MHz about center frequency, with a dead time at the beginning of each sweep.

2-7.18.5. High-Limit Blank Detector. U11 is a voltage comparator set by R44 to change states slightly beyond the band center point of the tuning voltage. That is, if the tuning voltage is below band center (approximately 5.63 V), the output of U11 is low. Above this point, the output goes high. R46 and R42 provide hysteresis to eliminate noise at the switching point. This output is applied to logic circuitry on timing controller CCA A3, which interrupts the video signal on the CRT display slightly beyond the 150-MHz point.

2-7.18.6. Positive Voltage Regulator. Positive voltage regulator U1 converts +15 V dc to well-regulated +10 V dc for use as a reference for several circuits on this assembly and for the output circuit on frequency discriminator CCA A14A1. Thus, a common mode cancelling effect assures minimal drift in critical frequency control circuits.

2-7.18.7. Reference Ground. The ground on receiver sweep ECA A15 is run via shielded cable to the output circuit on frequency discriminator CCA A14A1 and the integrator reference ground on loop amplifier CCA A14A2. Again, a common mode cancelling effect assures very little drift in critical control circuits.

2-7.19. Receiver Sweep ECA A15 (with CCA A15A1, P/N 5048944-1). (See figure FO-29.) Receiver sweep ECA A15 converts the sweep address counter and RAM write counter inputs, received from sweep address CCA A2 and memory address CCA A4, respectively, to corresponding voltages for sweeping the local oscillator via loop amplifier CCA A14A2. The 150-MHz limit comparator and a =10 V dc reference voltage regulator are also included on this assembly.

2-7.19.1. Wide Sweep Digital-To-Analog Converter. DAC U1 converts the digital input from the counter on sweep address CCA A2 to a corresponding analog current applied to the summing input (pin 2) of operational amplifier U2. U2 converts this current to a corresponding voltage. The operational feedback loop is through U1 via pin 10. VR1 and VR2 are 6.2-V reference diodes that provide positive and negative reference voltages to R5, so that R5 may serve as a zero set adjustment by providing referenced offset current to the summing junction of U2 via R12. Back-to-back diodes CR1 and CR2 protect U1 and U2 by preventing the summing junction from exceeding approximately ±0.7 V. The summing junction voltage should in normal condition be essentially 0. Potentiometer R4 permits calibration of full-scale output. The output of U1 is 0 V for zero binary input and +10 V dc for maximum binary input (19.99 MHz) applied to the digital-to-analog converter.

2-7.19.2. Narrow Sweep Digital-To-Analog Converter. DAC U8 converts the digital input from the RAM write address counter on memory address CCA A4 to a corresponding analog current applied to the summing input (pin 2) of operational amplifier U10. U10 converts this current to a corresponding voltage. The operational feedback loop for U10 is through U8 via pin 16. Back-to-back diodes CR5 and CR6 protect U8 and U10 from excessive voltage by preventing the summing junction from exceeding approximately ±0.7 V. Normally, the summing junction voltage is essentially 0. In normal operation, CR3 is reverse biased, and +15 V dc (less one diode drop) is applied to the positive supply voltage input of U8. If the +15 V dc supply voltage goes to near 0, due to failure or momentary short circuit or another assembly, for example, CR4 becomes reverse biased and +5 V dc (less one diode drop) is provided to the positive supply input of U8. This is necessary because U8 could be damaged if the positive supply voltage were allowed to become 0 with digital inputs being applied. The +10 V dc reference voltage generated by U12 on this assembly is divided down to +6.4 V dc by R26, R28, and R31, and buffered by U9. This voltage serves as a reference for bipolar symmetry calibration potentiometer R3. R2 provides calibration of full-scale output range. The overall output ramp is symmetrical about 0 and of sufficient amplitude to sweep the local oscillator ±1 MHz about center frequency (approximately ±5 V dc). Inverters U6 and U7 convert the 10-bit positive-logic input to negative logic necessary to operate the converter.

2-7.19.3. Summing Circuit. Operational amplifier U3 is connected in a unity-gain summing configuration. In the wide sweep operating mode, logic low from the sweep width switch causes analog switch U11 to ground one side of summing input resistor R13. Summing amplifier U3 therefore only inverts the ramp output of U2. In the narrow sweep mode, however, the sweep address counter on U1 provides a fixed center-frequency output, which causes U1 and U2 to provide a corresponding fixed dc voltage to one input (R7) of the summing amplifier. The input from the sweep width switch in this mode is logic high, which causes analog switch U11 to apply the ramp output of U8 and U10 to the second input (R13) of the summing amplifier. The signal from the narrow sweep mode DAC has a weighting equal to one-tenth the signal from the wide sweep mode DAC as determined by the ratio of R13 to R7. Therefore, the output of U3 is an inverted sum comprising the center-frequency fixed voltage and the superimposed ramp signal.

2-7.19.4. Offset And Scaling Circuit. Operational amplifier U4 and complementary emitter-follower-driver IC U5 are connected in a configuration that attenuates, reinverts, and dc offsets the ramp signal output of U3 while providing sufficient drive for tuning the local oscillator via loop amplifier CCA A14A2. The ratio of R9 to R16 sets the attenuation at 37%, and the referenced dc voltage applied to the positive input (pin 3) of U4 sets the offset at +3.75 V dc. Therefore, the tuning voltage applied to CCA A14A2 and to U13 is, in the wide sweep mode, a positive ramp signal (see figure 2-3) that varies between the lower peak value of 3.75 V dc and the upper peak value of 7.5 V, with band-change dead-time periods as determined by the programming of the sweep address counter on CCA A2 and another dead time at the beginning of each sweep. This ramp sweeps the receiver tuning section over a sector ±10 MHz about center frequency. In the narrow sweep operating mode, the output is a dc voltage corresponding to the center frequency, upon which is superimposed a ramp of 10% (0.375 V) of the wide sweep mode peak-to-peak voltage. This composite signal sweeps the receiver section ±1 MHz about center frequency, with a dead time at the beginning of each sweep.

2-7.19.5. High-Limit Blank Detector. U13 is voltage comparator set by R36 to change state slightly beyond the band center point of the tuning voltage. That is, if the tuning voltage is below band center (approximately 5.63 V), the output of U13 is low. Above this point, the output goes high. R46 and R44 provide hysteresis to eliminate noise at the switching point. This output is applied to logic circuitry on timing controller CCA A3, which interrupts the video signal on the CRT display slightly beyond the 150-MHz point.

2-7.19.6. Positive Voltage Regulator. Positive voltage regulator U12 converts +15 V dc to well-regulated +10 V dc for use as a reference for several circuits on this assembly and for the output circuit on frequency discriminator CCA A14A1. Thus, a common mode cancelling effect assures minimal drift in critical frequency control circuits.

2-7.19.7. Reference ground. The ground on receiver sweep ECA A15 is run via shielded cable to the output circuit on frequency discriminator CA A14A1 and the integrator reference ground on loop amplifier CCA A14A2. Again, a common mode cancelling effect assures very little drift in critical frequency control circuits.

2-8. INDICATOR CONTROL POWER DISTRIBUTION.

2-8.1. AC Power Distribution. Refer to figure FO-30. AC power distribution consists of single phase, 115 VAC, 400 Hz applied to front panel connector J4 and from there through W20 to time meter M1.

2-8.2. DC Power Distribution. DC power distribution consists of +5 V dc, +15 V dc, -15 V dc and +36 V dc applied through front panel connector J3 and W15 to J1 on contact assembly A16 for distribution to the appropriate ECA.

CHAPTER 3

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Section 1. GENERAL

3-1. SCOPE.

Direct support maintenance for the panoramic indicator and indicator control is not required. An indicator control removed during organizational maintenance is forwarded to the general support level for maintenance as described in chapter 4. A panoramic indicator that is removed during organizational maintenance is forwarded to the depot for disposition.

CHAPTER 4

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

4-1. SCOPE.

This chapter provides general support maintenance procedures for the indicator control. The procedures include inspection, cleaning, troubleshooting, removal, disassembly, repair, reassembly, and replacement. Also, information is included for common tools and equipment, special tools, TMDE and support equipment and repair parts. Maintenance procedures within this chapter are limited to those tasks that are performed using common tools and TMDE. For maintenance procedures for those tasks that are performed using the AN/USM-410(V)2 Automatic Test Equipment (ATE), refer to TM 32-5811-015-40&P.

This chapter does not contain any maintenance procedures for the panoramic indicator. When a panoramic indicator is found to be inoperative either by the system BITE or other means, it is removed from the system by organizational maintenance personel and returned to the depot for disposition.

Section II. RPSTL, SPECIAL TOOLS AND TEST EQUIPMENT

4-2. COMMON TOOLS AND EQUIPMENT.

A list of authorized common tools and equipment is provided as part of the Maintenance Allocation Chart (MAC) located in Appendix B of this manual.

4-3. SPECIAL TOOLS AND TEST EQUIPMENT.

A list of special tools, and test equipment is provided as part of the Maintenance Allocation Chart (MAC) located in Appendix B of this manual.

4-4. REPAIR PARTS.

Repair parts are listed and illustrated in Appendix C of this manual.

Section III. TROUBLESHOOTING

4-5. GENERAL.

Troubleshooting procedures for the indicator controls and most of the subassemblies are performed at the general support level of maintenance using the AN/USM-410(V)2. Troubleshooting beyond the capability of the AN/USM-410(V)2 will require that the unit be returned to depot.

4-6. INDICATOR CONTROL TROUBLESHOOTING PROCEDURES.

Troubleshooting procedures described in this section are limited to those performed on an assembly/component of the indicator control using standard TMDE for testing. The procedures describe how to fault isolate an inoperative total time meter. Refer to figure 4-1 for a troubleshooting logic diagram (TLD).

Section IV. MAINTENANCE

4-7. GENERAL.

This section provides maintenance instructions for those assemblies/subassemblies of the indicator control that are the responsibility of general support maintenance personnel, and are not tested with the AN/USM-410. Refer to TM32-5811-015-40&P for maintenance instructions for all CCAs and ECAs tested with the AN/USM-410(V)2.

4-8. INSPECTION OF INSTALLED ITEMS.

To inspect the indicator, proceed as follows:

a. Remove top and bottom access covers. Refer to paragraph 4-10.1.

b. Inspect all interior cables for kinks, and strained, cut, frayed or otherwise damaged insulation. Check cable connectors for correct pin depths and make sure they are securely mounted to cables.

c. Replace top and bottom access covers. Refer to paragraph 4-15.20.

d. Inspect exterior surfaces of the unit for dust, chipped paint, and corrosion. If necessary, spot paint surfaces as follows:

  (1) Remove rust and corrosion from metal surfaces by lightly sanding them with no. 000 sandpaper (item 9, App. D).

  (2) Brush two coats of light green semi-gloss enamel (item 8, App. D); MIL-E-15090 class 2 type III color number 24410 IAW FED Standard 595, on bare metal to protect it from further corrosion.

  (3) Refer to the applicable cleaning and refinishing practices specified in TB 746-10.

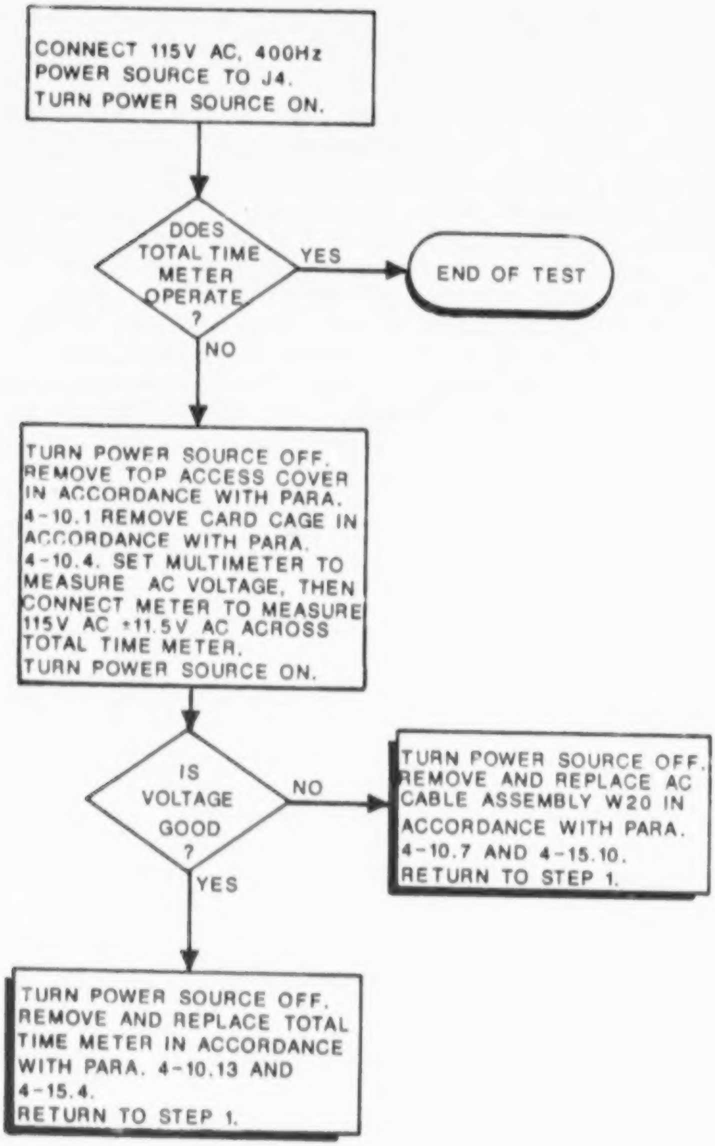

CONNECT 115V AC, 400Hz POWER SOURCE TO J4. TURN POWER SOURCE ON.
DOES TOTAL TIME METER OPERATE ?
YES
END OF TEST
NO
TURN POWER SOURCE OFF. REMOVE TOP ACCESS COVER IN ACCORDANCE WITH PARA. 4-10.1 REMOVE CARD CAGE IN ACCORDANCE WITH PARA. 4-10.4. SET MULTIMETER TO MEASURE AC VOLTAGE, THEN CONNECT METER TO MEASURE 115V AC ±11.5V AC ACROSS TOTAL TIME METER. TURN POWER SOURCE ON.
IS VOLTAGE GOOD ?
NO
TURN POWER SOURCE OFF. REMOVE AND REPLACE AC CABLE ASSEMBLY W20 IN ACCORDANCE WITH PARA. 4-10.7 AND 4-15.10. RETURN TO STEP 1.
YES
TURN POWER SOURCE OFF. REMOVE AND REPLACE TOTAL TIME METER IN ACCORDANCE WITH PARA. 4-10.13 AND 4-15.4. RETURN TO STEP 1.

Figure 4-1. Total Time Meter Troubleshooting Logic Diagram

4-9. CLEANING.

Make sure exterior surfaces of the equipment are clean. To clean the indicator control proceed as follows:

a. Remove dust and loose dirt with a clean, soft cloth (item 5, App. D).

b. Remove dust and dirt from plugs and jacks with a soft bristle brush (item 4, App. D).

WARNING

Adequate ventilation must be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent must not be used near heat or open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluoroethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy duty rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

c. Remove grease, fungus, and ground-in dirt using a cloth dampened (not wet) with trichlorothrifluorethane (item 14, App. D).

4-10. REMOVAL PROCEDURES.

These procedures describe how to remove those assemblies and subassemblies of the indicator control that are not tested with the AN/USM-410(V)2 and are authorized to be replaced at the general support level. Removal procedures are presented in a logical sequence to completely disassemble the indicator control. Disassemble the equipment only to the extent necessary to perform a particular repair function. Refer to figure 4-2 for component locations.

4-10.1. Top or Bottom Access Cover Removal. To remove either the top access cover (1) or the bottom access cover (2), loosen the 26 captive screws (3) and lift the cover off the chassis (4).

4-10.2. Card Cage Cover Removal. To remove the card cage cover (5), proceed as follows:

a. Remove top access cover in accordance with paragraph 4-10.1.

b. Remove four screws (6), lockwashers (7) and flat washers (8) that secure card cage cover (5) to card cage, then remove card cage cover.

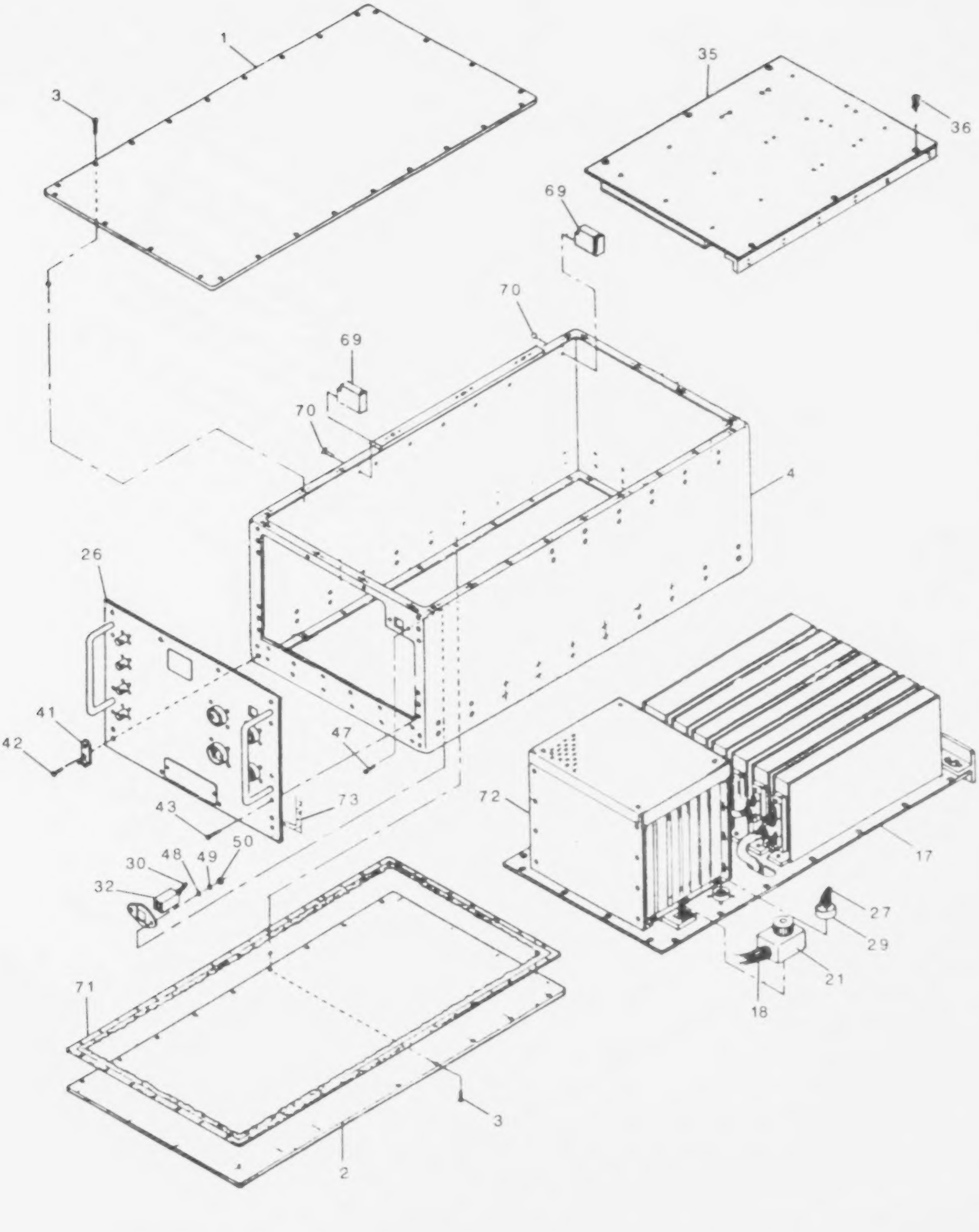


Figure 4-2. Indicator Control Component Location (Sheet 1 of 3)

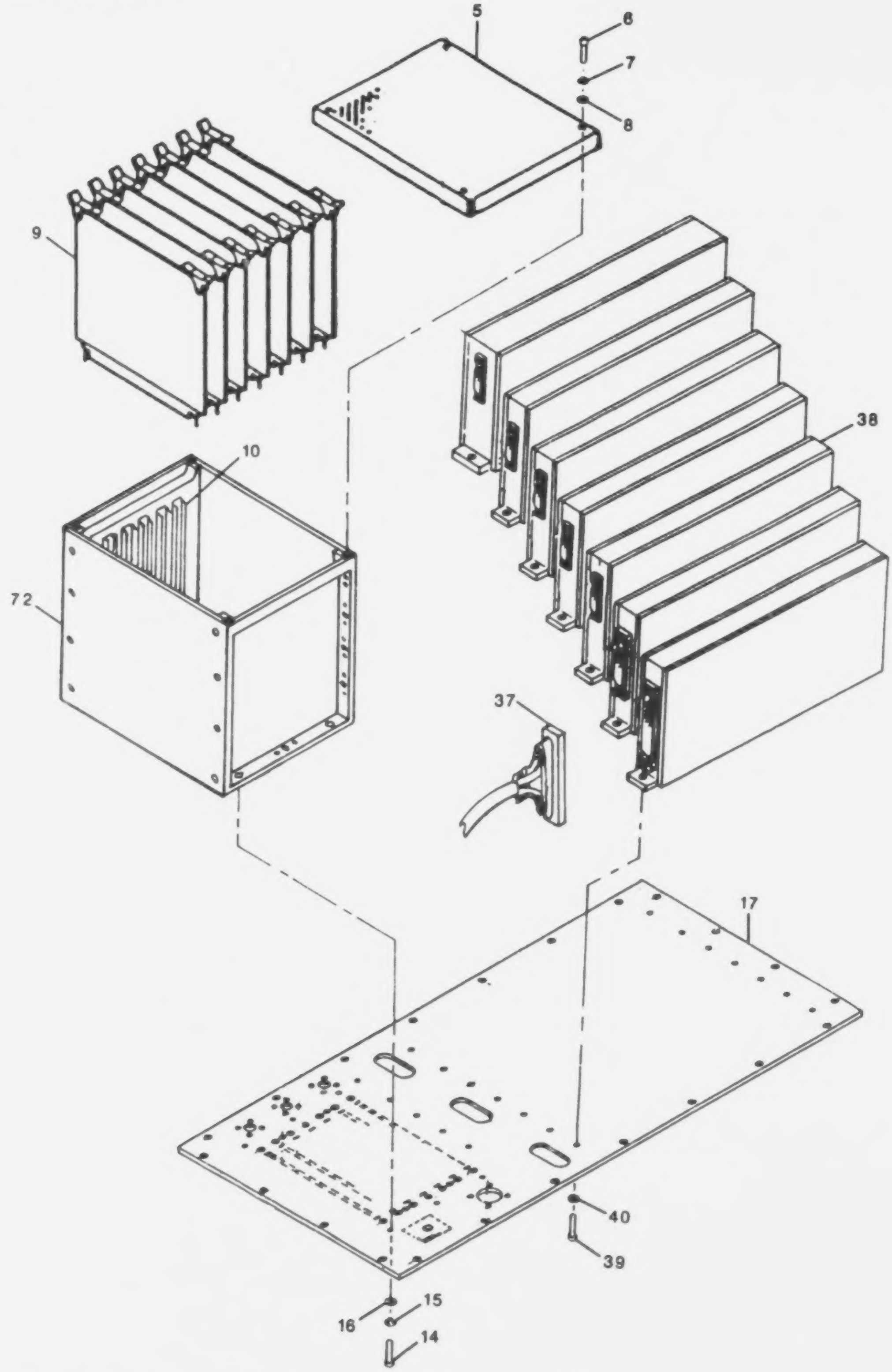


Figure 4-2. Indicator Control Component Location
(Sheet 2 of 3)

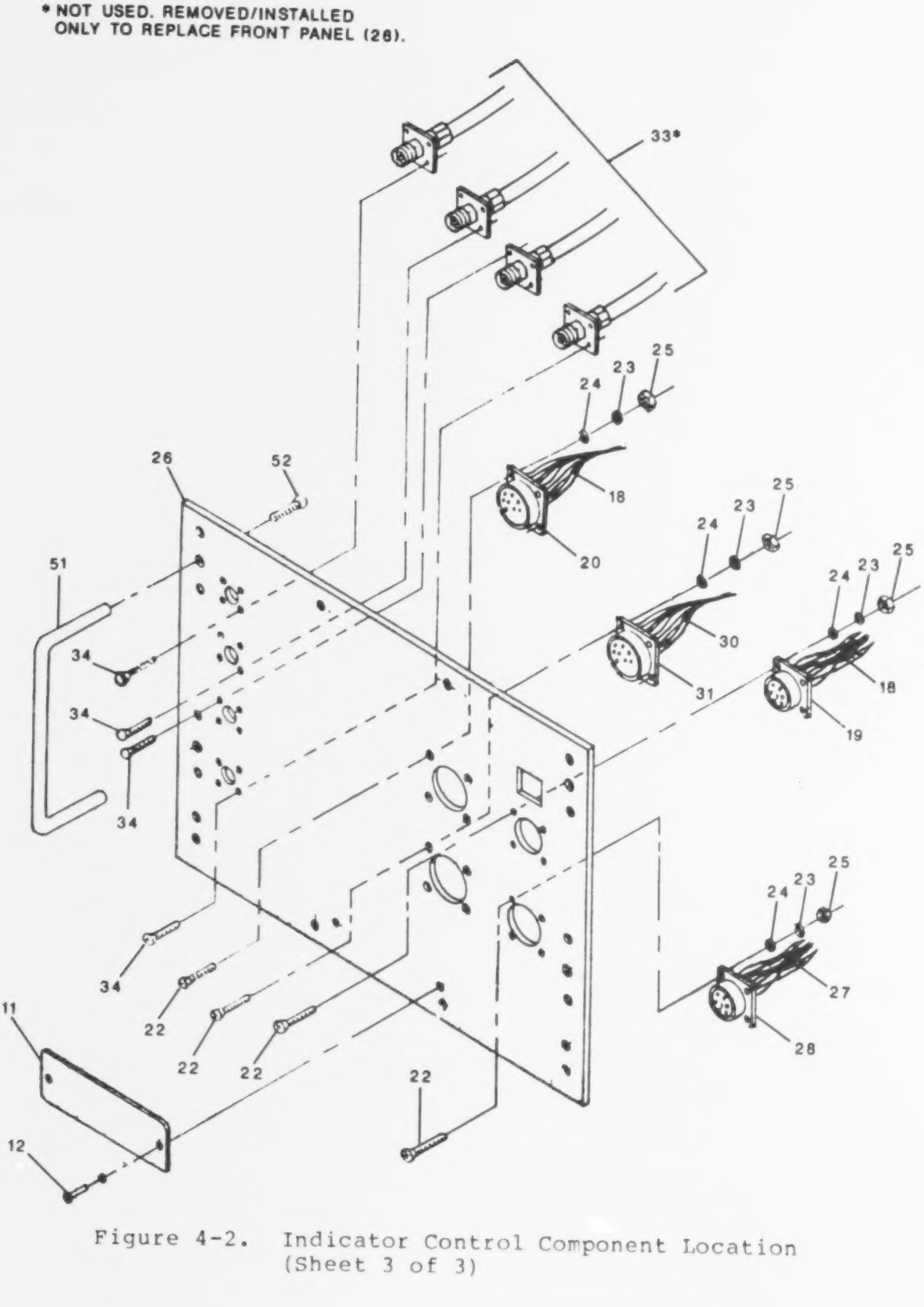


Figure 4-2. Indicator Control Component Location
(Sheet 3 of 3)

4-10.3. CCA Removal. To remove a CCA (9) from the indicator control, proceed as follows:

a. Remove top access cover in accordance with paragraph 4-10.1.

b. Remove card cage cover (5) in accordance with paragraph 4-10.2.

c. Lift up on CCA ejectors to free the CCA (9) from its connector, then pull the CCA out of the card guides (10).

4-10.4. Card Cage Removal. To remove the card cage (72) from the indicator control, proceed as follows:

a. Remove top and bottom access covers (1 and 2) in accordance with paragraph 4-10.1.

b. Remove card cage cover (5) in accordance with paragraph 4-10.2.

c. Remove CCAs (9) in accordance with paragraph 4-10.3.

d. Place indicator control on its side, then remove six screws (14), lockwashers (15) and flat washers (16) that secure card cage to connector plate assembly (17) and remove card cage.

4-10.5. Special Purpose Cable Assembly W14 Removal. Special purpose cable assembly W14 (18) consists of front panel connectors J1 (19) and J2 (20), backplane connector (21) and related wiring. To remove W14 from the indicator control, proceed as follows:

a. Remove top access cover (1) in accordance with paragraph 4-10.1.

b. Remove card cage in accordance with paragraph 4-10.4.

c. Loosen and remove connector P1 (21) from J2 on connector plate assembly (17).

d. Remove eight screws (22), lock washers (23), flat washers (24) and nuts (25) that secure both connectors J1 (19) and J2 (20) to front panel (26), then remove cable assembly W14 from indicator control.

4-10.6. Special Purpose Cable Assembly W15 Removal. Special purpose cable assembly W15 (27) consists of front panel connector J3 (28) and connector P1 (29) which connects to J1 on the connector plate assembly (17). To remove W15 from the indicator, proceed as follows:

a. Remove top access cover (1) in accordance with paragraph 4-10.1.

b. Remove card cage (72) in accordance with paragraph 4-10.4.

c. Loosen and remove connector P1 (29) from J1 on connector plate assembly (17).

d. Remove four screws (22), lock washers (23), flat washers (24) and nuts (25) that secure connector J3 (28) to front panel (26), then remove cable assembly W15 from indicator control.

4-10.7. Special Cable Assembly W20 Removal. Special purpose cable assembly W20 (30) consists of front panel connector J4 (31) and total time meter M1 (32). To remove W20 from the indicator control, proceed as follows:

a. Remove top access cover (1) in accordance with paragraph 4-10.1.

b. Remove card cage in accordance with paragraph 4-10.4.

c. Remove four screws (22), lock washers (23), flat washers (24) and nuts (25) that secure connector J4 to front panel (26), then remove J4 from front panel.

d. Tag wires to total time meter (32) for proper reconnection, then unsolder wires from M1. Remove W20 from indicator control.

4-10.8. RF Cable Assembly W16 thru W19 Removal. To remove one or more of RF cable assemblies W16 thru W19 (33), proceed as follows:

a. Remove top access cover (1) in accordance with paragraph 4-10.1.

b. Remove card cage in accordance with paragraph 4-10.4.

c. Loosen and remove RF cable being replaced at A16J3 thru J5 or A8J4.

d. Remove four screws (34) that secure RF cable being removed to front panel (26), then remove RF cable from indicator control.

4-10.9. Front End Assembly A8 Removal. To remove front end assembly A8 (35) from the indicator control, proceed as follows:

a. Remove top access cover (1) in accordance with paragraph 4-10.1.

b. Release six turnlock fasteners (36) that secure assembly A8 (35) to chassis (4).

c. Carefully lift assembly A8 out of chassis to obtain access to coaxial cable connectors. Verify that all cables are correctly tagged, then disconnect all coaxial cables from assembly A8.

d. At connector A8J11, slide connector retainer (37) to the right to release connector P1 from connector A8J11, then remove assembly A8 from indicator control.

4-10.10. ECAs A9 thru A15 Removal. To remove one or more of ECAs A9 thru A15 (38), proceed as follows:

a. Remove top and bottom access covers (1 and 2) in accordance with paragraph 4-10.1.

b. Remove card cage in accordance with paragraph 4-10.4.

c. Place indicator control on its side and remove two screws (39) and flat washers (40) associated with ECA being removed.

d. Place indicator control top side up and remove ECA A8 in accordance with paragraph 4-10.9. Do not disconnect cabling to ECA A8. Mount ECA A8 in two support blocks (69).

e. Verify that all coaxial cables connected to ECA being removed are correctly tagged, then disconnect all coaxial cables from ECA being removed.

f. At connector J1 of ECA being replaced, push connector retainer (37) down and remove connector (P2 thru P8), then remove ECA from indicator control.

4-10.11. Holddown Hook Removal. To remove one of the holddown hooks (41) from the front panel (26), remove the two screws (42) that secure the holddown hook to the panel and remove the hook.

4-10.12. Front Panel Removal. To remove the front panel (26) from the indicator control, proceed as follows:

a. Remove bottom access cover (2) in accordance with paragraph 4-10.1.

b. Remove holddown hooks (41) in accordance with paragraph 4-10.11.

c. Remove screws (22), lock washers (23), flat washers (24) and nuts (25) that secure J1 through J4 to front panel.

d. Remove screws (34) that secure J5 through J8 to front panel.

e. Remove 10 screws (43) that secure front panel to chassis (4) and remove front panel from chassis.

4-10.13. Total Time Meter M1 Removal. To remove total time meter (32) M1 from the indicator control, proceed as follows:

a. Remove top and bottom access covers (1 and 2) in accordance with paragraph 4-10.1.

b. Remove holddown hooks (41) in accordance with paragraph 4-10.11.

c. Remove front panel (26) in accordance with paragraph 4-10.12.

d. Tag wires to M1 (32) for proper reconnection, then unsolder wires.

e. Remove two screws (47), flat washers (48), lock washers, (49) and nuts (50) that secure M1 to chassis (4), then remove M1.

4-10.14. Bow Handle Removal. To remove a bow handle (51) from the indicator control, proceed as follows:

a. Remove bottom access cover (2) in accordance with paragraph 4-10.1.

b. Remove holddown hooks (41) in accordance with paragraph 4-10.11.

c. Remove front panel (26) in accordance with paragraph 4-10.12.

d. Remove two screws (52) that secure bow handle (51) to front panel and remove bow handle.

4-10.15. Support Block Removal. To remove either of the support blocks (69) from the chassis (4), proceed as follows:

a. Remove top access cover (1) in accordance with paragraph 4-10.1.

b. Remove front end assembly A8 (35) in accordance with paragraph 4-10.9. It is not necessary to disconnect any cables to assembly A8.

c. Remove two screws (70) that secure support block being replaced, then remove support block.

4-10.16. Identification Plate Removal. To remove the identification plate (11) from the front panel (26), remove the two screws (12) securing the plate and remove the plate.

4-11. DISASSEMBLY PROCEDURES.

The following paragraphs describe how to disassemble the special purpose cable assemblies W14, W15 and W20. Special purpose cable disassembly consists of removing front panel connectors, and when applicable, disassembling and removing the backplane connector.

4-11.1. Backplane Connector W14P1. To disassemble W14P1, refer to figure 4-3 and proceed as follows:

a. Grasp knob (1) and remove retaining screw (2), then carefully pry knob off of machine screw (3).

b. Turn connector over to expose bottom, then remove two screws (4) that secure cover (5) to insulator plate (6) and remove cover.

c. Remove two screws (7) that secure cable clamp (8) to insulator plate and remove cable clamp.

d. Tag all wires for proper reconnection, then use extractor tool to remove wires from insulator plate.

4-11.2. Front Panel Connectors or Connector W15P1. To remove a front panel connector or W15P1 from a cable assembly, tag all wires to the connector for proper reconnection, then use an extractor to remove the wires from the connector.

4-12. REPAIR PROCEDURES.

This paragraph describes how to repair those assemblies/ components that are authorized to be repaired at the general support, and which are not tested with the AN/USM-410.

4-12.1. CCA Ejector. The following procedure describes how to replace a defective CCA ejector. To replace an ejector, proceed as follows:

a. Use center punch and small hammer to drive spring pin through hole in CCA and ejector and remove defective ejector.

b. Align replacement ejector over hole in CCA. Use longnose pliers to compress spring pin sufficiently to insert spring pin through hole in ejector.

c. Use center punch and small hammer to drive spring pin through hole until pin is flush with both sides of ejector.

4-12.2. Turnlock Fastener. To replace a damaged turnlock fastener, proceed as follows:

a. Remove access cover or assembly to be repaired in accordance with paragraph 4-10.

b. Use small needle-nose pliers to remove split-ring washer from turnlock fastener and remove damaged fastener from cover or assembly.

c. Insert new fastener through hole in cover and press on split-ring washer.

d. Replace access cover or assembly in accordance with paragraph 4-15.

4-12.3. Chassis Repair. To replace a rivet(s) on the chassis, proceed as follows:

a. Remove covers and components as required to gain access to rivet(s) to be replaced. (Refer to paragraph 4-10.)

b. Center punch the rivet head of rivet to be replaced.

c. Using a drill smaller than the diameter of the rivet, drill out the center of rivet head to be replaced.

d. Increase the size of the drill to rivet size or a size slightly smaller than rivet size, and again drill out rivet head. Rivet head should fall off at this point. If not, position a punch or similar tool against the rivet head and strike it with a hammer.

e. Using a punch and a hammer, punch out the remainder of the rivet to be replaced.

f. Obtain and install appropriate size rivet. Using the riveter and appropriate size head, install the replacement rivet.

g. Replace covers and components in accordance with procedures in paragraph 4-15.

4-12.4. Cable Repair. The following procedure describes how to repair the coaxial and multiconductor cables and replace the cable markers.

4-12.4.1. Coaxial Cable Repair. Repair of a coaxial cable consists of replacement of the defective connector or a remanufacture of the cable. The connectors are soldered to the coaxial cable.

4-12.4.1. Multiconductor Cable Repair. To repair or replace a multiconductor connector on a cable, proceed as follows:

a. Remove heatshrink, if necessary.

b. Tag wires being removed for identification during reinstallation.

c. For connectors with crimped contacts:

(1) Use extraction tools to remove contact and attach wire from connector.

(2) Remove contact from wire.

(3) Attach new contact onto wire.

(4) Replace contact into connector body using insertion tool.

d. For connectors with solder contacts:

(1) Use soldering iron to remove wire from contact.

(2) If the connector has removeable solder contacts, remove damaged or suspect contact. Solder wire onto contact. Replace contact into connector.

(3) If only a solder joint is damaged or suspected of failure, strip wire and resolder stripped wire onto contact. Replace contact into connector.

e. Install heatshrink if necessary.

f. Remove any wire tags on wires.

4-12.4.3. Cable Marker Replacement. Identification marker bands are placed at each cable end. It identifies the connector reference designation and the mating connector reference designation (in parenthesis). Another marker near the cable midpoint identifies the cable part number, the manufacturer's federal supply code number and the designer's federal supply code number. To replace a cable marker in conjunction with the replacement of a connector, use heatshrink tubing with all the pertinent data typed on the tubing and slide the tubing on over the cable. Shrink the tubing using a heat gun. If only the cable marker is to be replaced, use a tag with the pertinent data typed on the tag and secure the tag to the cable using lacing tape or cable ties.

4-12.5. Access Cover Repair. An access cover may be repaired by removing and replacing a damaged EMI shielding gasket or screw fastener. To repair an access cover, proceed as follows:

a. To remove and replace a damaged EMI shielding (71) gasket, remove rivets that secure gasket to underside of cover in accordance with paragraph 4-12.3, steps a through e, then mount replacement gasket to underside of cover and secure with new rivets. Intall rivets in accordance with paragraph 4-12.3, step f.

b. To remove and replace a damaged screw fastener (3), remove a sufficient number of rivets surrounding the area where defective screw is located.

c. Pull shield gasket away from plate a sufficient distance to gain access to defective screw. DO NOT stretch gasket beyond recovery length. Use a pair of small bolt cutters to cut off the screw head, then remove the washer and defective screw.

d. Obtain a replacement washer. Using a die or a thick steel plate with a hole slightly smaller than the outside diameter of the washer, and using a ballpeen hammer and center punch, tap the washer into a cone shape until the threads of a replacement screw fastener go through (or will thread through) without damaging the screw threads.

e. Place washer over hole in access plate where defective screw was removed. The cone shaped washer should point away from the screw head.

f. Thread replacement screw into hole and through washer. Use pliers to flatten washer as much as possible.

g. Replace rivets to secure shield gasket to cover.

4-12.6 Front Panel Repair. To replace a defective shield gasket on the back side of the front panel, proceed as follows:

a. Remove defective shield gasket using knife or other sharp object.

WARNING

Adequate ventilation must be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent must not be used near heat or open flame: The products of decomposition are toxic and irritating. Since trichlorotrifluorethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

b. Remove old adhesive and any grease or dirt using a cloth dampened (not wet) with trichlorotrifluoroethane (item 14, App. D).

c. After sufficient drying time, lay new shielding gasket (73) in place on back of front panel and mark area of panel where gasket goes.

d. Apply adhesive tape (item 31, App. D) to area where gasket goes, then press gasket onto tape.

4-12.7. Nut Plate and Turnlock Receptacle. To remove and replace the nut plates (13) or turnlock receptacles (14) remove and replace the two attaching rivets (15) in accordance with paragraph 4-12.3.

4-12.8. Identification Label. To remove and replace the CCA identification label on the inside of top access cover, proceed as follows:

WARNING

Adequate ventilation must be provided while using trichlorotrifluoroethane. Prolonged breathing of vapor should be avoided. The solvent must not be used near heat or open flame: The products of decomposition are toxic and irritating. Since trichlorotrifluorethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use heavy rubber gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

a. Remove old adhesive and any grease or dirt using a cloth dampened (not wet) with trichlorotrifluoroethane (item 14, App. D).

b. After sufficient drying time, wipe the cleaned area with a clean dry cloth, then remove the protective back from the replacement label and press label in place.

4-13. REASSEMBLY PROCEDURES.

Reassembly procedures in this manual are limited to those procedures that are performed at the general support level on a SRU/assembly that is not tested with the AN/USM-410. The procedures cover reassembly of the special purpose cable assemblies W14, W15, and W20. Refer to figures 4-2 and 4-3. Special purpose cable reassembly consists of replacing front panel connectors, and when applicable, reassembling backplane connector W14P1.

4-13.1. Backplane Connector W14P1. To reassemble W14P1, refer to figure 4-3 and proceed as follows:

a. Use insertion tool to insert wires into insulator plate (6) as marked during disassembly.

b. Secure cable harness to insulator plate using cable clamp (8). Secure clamp to plate with two screws (7).

c. Place cover (5) on insulator plate and secure with two screws (4) inserted through bottom side of plate.

d. Mount knob (1) onto machine screw head and secure with retaining screw (2).

4-13.2. Front Panel Connectors or Connector W15P1. To reassemble a front panel connector or connector W15P1, use an insertion tool to insert wires into connector as tagged during disassembly.

4-14. ALINEMENT PROCEDURES.

Alinement procedures for the indicator control are performed either at the general support level using the AN/USM-410, or at the depot using special test equipment (STE). For this reason, no alinement procedures are presented in this manual.

4-15. REPLACEMENT PROCEDURES.

Replacement procedures in this manual describe how to replace those SRUs/assemblies of the indicator control that are not tested with the AN/USM-410 and are authorized to be replaced at the general support level. Replacement procedures are presented in a logical sequence to completely reassemble the indicator control. Refer to figure 4-2 for component location.

4-15.1. Identification Plate Replacement. To replace the identification plate (11) on the front panel (26), apply locking compound (item 6, App. D) to the two screws (12), then use the screws to secure the plate to the front panel.

4-15.2. Support Block Replacement. To replace either of the support blocks (69) in the chassis (4), proceed as follows:

a. Mount support block being replaced and secure with two screws (70).

b. Replace front end assembly A8 (35) in accordance with paragraph 4-15.7.

c. Replace top access cover (1) in accordance with paragraph 4-15.14.

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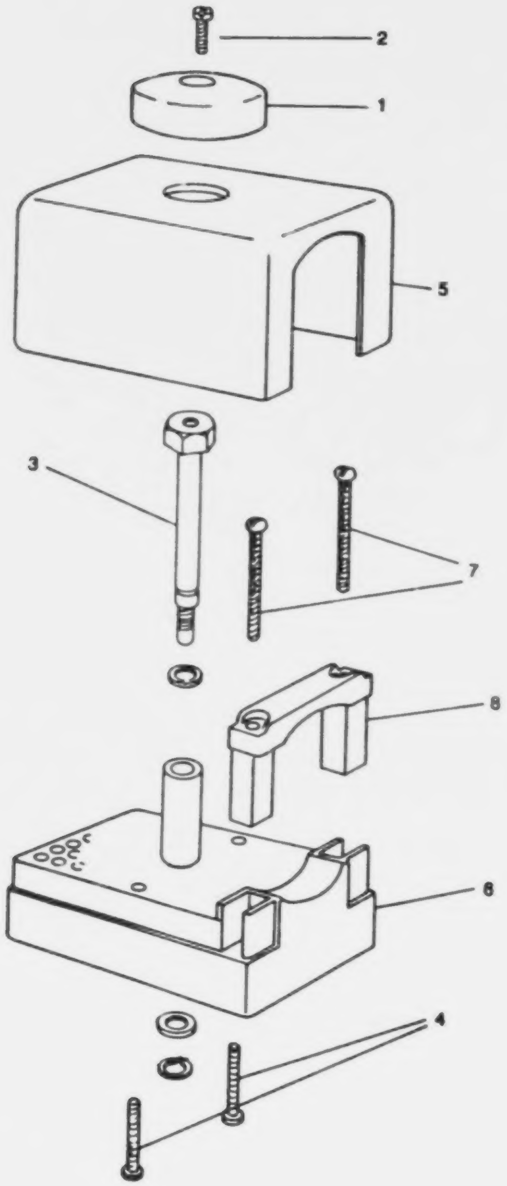

Figure 4-3. Connector W14P1 Exploded View

4-15.3. Bow Handle Replacement. To replace a bow handle (51), on the indicator control, proceed as follows:

a. Mount bow handle to front panel (26). Apply locking compound (item 6, appendix D) to screws (52), then use screws to secure bow handle to front panel.

b. Replace front panel (26) in accordance with paragraph 4-15.5.

c. Replace holddown hooks (41) in accordance with paragrpah 4-15.6.

d. Replace bottom access cover in accordance with paragraph 4-15.16.

4-15.4. Total Time Meter M1 Replacement. To replace total time meter (32) M1 in the indicator control, proceed as follows:

a. Mount M1 (32) in opening on chassis (4) and secure with two screws (47), flat washers (48), lock washers (49) and nuts (50).

b. Place half-inch of heatshrink sleeving (item 10, Appendix D) over each wire, then solder wires to M1. Slide sleeving over connection and shrink.

c. Replace front panel (26) in accordance with paragraph 4-15.5.

d. Replace holddown hooks (41) in accordance with paragraph 4-15.6.

e. Replace top and bottom access covers (1 and 2) in accordance with paragraph 4-15.16.

4-15.5. Front Panel Replacement. To replace the front panel (26) on the indicator control, proceed as follows:

a. Mount front panel (26) to front of chassis (4) and secure with 10 screws (43).

b. Secure bottom of front panel to chassis with two flat washers (46), lock washers (45) and nuts (44).

c. Mount connectors J5 through J8 to front panel and secure each with four screws (34).

d. Mount connectors J1 through J4 to front panel and secure each with four screws (22), lock washers (23), flat washers (24) and nuts (25).

e. Replace holddown hooks (41) in accordance with paragraph 4-15.6.

f. Replace bottom access over (2) in accordance with paragraph 4-15.16.

4-15.6. Holddown Hook Replacement. To replace one of the holddown hooks (41) on the front panel (26), apply locking compound (item 6, Appendix D) to the two screws (42), then use the screws to secure the holddown hook to the front panel.

4-15.7. ECAs A9 thru A15 Replacement. To replace one of the ECAs (A9 thru A15), proceed as follows:

a. Place ECA A8 in two support blocks (69), then place indicator control on its side. Mount replacement ECA (38) in position and secure with two screws (39) and flat washers (40).

b. Place indicator control top side up and connect J1 to ECA, then push connector retainer (37) up to secure J1 to ECA connector.

c. Connect all coaxial cables to ECA.

d. Remove ECA A8 from support blocks and replace in accordance with paragraph 4-15.8.

e. Replace card cage in accordance with paragraph 4-15.13.

f. Replace top and bottom access covers (1 and 2) in accordance with paragraph 4-15.16.

4-15.8. Front End Assembly A8 Replacement. To replace front end assembly A8 (35) in the indicator control, proceed as follows:

a. Place front end assembly A8 in two support blocks (69), then connect W19P1 to A8J11. Slide connector retainer (37) to the right to secure W19P1 to ECA connector.

b. Connect all coaxial cables to assembly A8.

c. Remove assembly A8 from support blocks and position ECA in chassis. Be careful not to pinch any wiring or cables. Tighten six turnlock fasteners (36) to secure assembly A8 to chassis (4).

d. Replace top access cover (1) in accordance with paragraph 4-15.16.

4-15.9. RF Cable Assembly W16 thru W19 Replacement. To replace one of the RF cable assemblies (33), proceed as follows:

a. Mount replacement RF cable assembly to front panel (26) and secure with four screws (34).

b. Connect replacement RF cable assembly to appropriate coaxial connector on connector plate assembly A16 and tighten connector.

c. Replace card cage in accordance with paragraph 4-15.13.

d. Replace top access cover (1) in accordance with paragraph 4-15.16.

4-15.10. Special Purpose Cable Assembly W20 Replacement. To replace W20 (30) in the indicator control, proceed as follows:

a. Install cable assembly W20 into chassis (4), then solder wires to total time meter (32) as tagged during removal.

b. Mount connector J4(31) to front panel (26) and secure with four screws (22), lock washers (23), flat washers (24) and nuts (25).

c. Replace card cage in accordance with paragraph 4-15.13.

d. Replace top access cover (1) in accordance with paragraph 4-15.16.

4-15.11. Special Purpose Cable Assembly W15 Replacement. To replace W15 (27) into the indicator control, proceed as follows:

a. Install cable assembly W15 into chassis (4), then secure connector J3 (28) to front panel (26) with four screws (22), lock washers (23), flat washers (24) and nuts (25).

b. Connect connector P1 (29) to J1 on connector plate assembly (17).

c. Replace card cage in accordance with paragraph 4-15.13.

d. Replace top access cover (1) in accordance with paragraph 4-15.16.

4-15.12. Special Purpose Cable Assembly W14 Replacement. To replace cable assembly W14 (18) into the indicator control, proceed as follows:

a. Install cable assembly W14 into chassis (4), then mount connector J1 (19) and J2 (20) to front panel (26) and secure each connector with four screws (22), lock washers (23), flat washers (24) and nuts (25).

b. Connect P1 (21) to A16J1 on connector plate assembly (17) and tighten connector.

c. Replace card cage in accordance with paragraph 4-15.13.

d. Replace top access cover (1) in accordance with paragraph 4-15.16.

4-15.13. Card Cage Replacement. To replace the card cage (72) in the indicator control, proceed as follows:

a. Position card cage inside chassis (4). Be sure that cage is oriented so that components on circuit cards will face front panel.

b. Place indicator control on its side and secure card cage to chassis wiring six screws (14), lock washers (15) and flat washers (16).

c. Replace CCAs (9) in accordance with paragraph 4-15.14.

d. Replace card cage cover in accordance with paragraph 4-15.15.

e. Replace top and bottom access covers (1) in accordance with paragraph 4-15.16.

4-15.14. CCA Replacement. To replace a CCA in the indicator control, determine the appropriate location for installing the CCA (see Table 4-1), then insert the CCA into the card guides (10) and push it firmly into the connector on the connector plate assembly (17). After replacing the CCA, replace the card cage cover (5) in accordance with paragraph 4-15.15, and the top access cover (1) in accordance with paragraph 4-15.16.

4-15.15. Card Cage Cover Replacement. To replace the card cage cover (5) in the indicator control, place the cover over the card cage and secure it with four screws (6), lock washers (7) and flat washers (8), then replace the top access cover in accordance with paragraph 4-15.16.

4-15.16. Top or Bottom Access Cover Replacement. To replace the top access cover (1) or the bottom access cover (2), position the cover over the opening and secure it to the chassis (4) by tightening the 26 screw fasteners (3).

4-16. TESTING PROCEDURES.

Test procedures in this manual are limited to those procedures that are performed on a SRU/assembly that is not tested with the AN/USM-410(V)2. The only test procedure applicable to this manual is for total time meter M1. To test M1, follow the procedure given in figure 4-1. All other testing for the indicator is performed either on the AN/USM-410(V)2 or at the depot.

4-17. ADJUSTMENT PROCEDURES.

This paragraph provides adjustment procedures for the panoramic indicator and indicator control.

4-17.1. Panoramic Indicator. There are no internal adjustments made to the panoramic indicator at the general support level. General support level adjustments consists of performing the adjustment described in TM 32-5865-012-10. The adjustments should be made prior to operation, and after repairs and adjustments are made to the indicator control.

4-17.2. Indicator Control Adjustment Procedure. Indicator control adjustment procedure performed at the general support level use the AN/USM-410(V)2.

Table 4-1. Indicator Control CCA Locations

A7	10-123614-1	RCU INTERFACE
A6	C5135457-1	MEMORY
A5	10-123594-1	MEMORY I/O BUFFER
A4	10-123624-2	MEMORY ADDRESS
A3	951-1-4137-1	TIMING CONTROLLER
A2	10-123584-1	SWEEP ADDRESS
A1[1]	951-1-4873-1	CIRCUIT CLOCK

[1] Circuit Card A1 is the closest to the front panel.

CHAPTER 5

INTERCONNECT WIRING LIST

5-1. SCOPE.

This chapter provides the wire lists for the indicator control. The lists are used to determine point-to-point wiring. Each point's origin (from) and destination (to) are listed. When a point listed in the FROM column is routed to more than one point, the FROM point is listed only once and the rest are left blank and only the TO point is listed. Points that are not connected are not listed. Pin-for-pin cables are not listed. (Pin-for-pin cables are cables that have identical plugs at both ends and each pin connected has the same pin number at both ends.) All other connections are listed. Wiring interconnections shown in figures FO-3 and FO-28 thru FO-30 have not been repeated in this chapter.

Wire lists and wiring diagrams take precedence over schematics due to unused card connector pins. The following wire lists are provided:

Wire list	Page
Connector Plate Assembly A16	5-2
Special Purpose Cable Assembly W14	5-9
Special Purpose Cable Assembly W15	5-10
Special Purpose Cable Assembly W20	5-11

Table 5-1. Connector Plate Assembly A16 Wire List

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
A16-F1		XA7	2	20AWG	RED		+5VDC
X-A7	6	XA7	5	26AWG	RED		+15VDC
A16-E3		XA7	6	24AWG	RED		
X-A7	5	XA6	5	26AWG	RED		
X-A6	5	XA5	5	26AWG	RED		
X-A5	5	XA4	5	26AWG	RED		
X-A4	5	XA3	5	26AWG	RED		
X-A3	5	XA2	5	26AWG	RED		
X-A2	5	XA1	5	26AWG	RED		+15VDC
A16-E4		XA7	8	24AWG	VIO		-15VDC
X-A7	7	XA6	7	26AWG	RED		
X-A6	7	XA5	7	26AWG	RED		
X-A5	7	XA4	7	26AWG	RED		
X-A4	7	XA3	7	26AWG	RED		
X-A3	7	XA2	7	26AWG	RED		
X-A2	7	XA1	7	26AWG	RED		
X-A7	8	XA7	7	26AWG	RED		-15VDC
X-A7	88	XA7	87	26AWG	RED		+15VDC
A16-E3		XA7	88	24AWG	RED		
X-A7	87	XA6	87	26AWG	RED		
X-A6	87	XA5	87	26AWG	RED		
X-A5	87	XA4	87	26AWG	RED		
X-A4	87	XA3	87	26AWG	RED		
X-A3	87	XA2	87	26AWG	RED		
X-A2	87	XA1	87	26AWG	RED		+15VDC
A16-E4		XA7	86	24AWG	VIO		-15VDC
X-A7	85	XA6	85	26AWG	RED		
X-A6	85	XA5	85	26AWG	RED		
X-A5	85	XA4	85	26AWG	RED		
X-A4	85	XA3	85	26AWG	RED		
X-A3	85	XA2	85	26AWG	RED		
X-A2	85	XA1	85	26AWG	RED		
X-A7	86	XA7	85	26AWG	RED		-15VDC
X-A7	14	A16-J2	P1	30AWG	WHT		DATA
X-A7	13	A16-J2	P3	30AWG	BLK		DATA RTN
X-A7	16	A16-J2	M1	30AWG	WHT		ClOCK
X-A7	15	A16-J2	M3	30AWG	BLK		CLOCK RTN
X-A7	17	A16-J2	K1	30AWG	WHT		LOAD
X-A7	18	A16-J2	K3	30AWG	BLK		LOAD RTN
X-A7	20	A16-J2	K9	30AWG	BLU		60 MHZ TEST
X-A7	24	A16-J2	M9	30AWG	BLU		CENT FREQ HOLD
X-A7	40	XA3	11	30AWG	BLU		TCFF
X-A7	51	XA3	57	30AWG	BLU		BCD = 100
X-A7	53	XA3	59	30AWG	BLU		BCD 80
X-A7	55	XA3	61	30AWG	BLU		BCD 40

Table 5-1. Connector Plate Assembly A16 Wire List - Continued

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
X-A7	57	XA3	63	30AWG	BLU		BCD 20
X-A7	59	XA3	37	30AWG	BLU		BCD 10
X-A7	62	XA2	10	30AWG	BLU		BCD 8
XA7	64	XA2	11	30AWG	BLU		BCD 4
XA7	66	XA2	12	30AWG	BLU		BCD 2
XA7	68	XA2	13	30AWG	BLU		BCD 1
XA7	70	XA2	14	30AWG	BLU		BCD .8
XA7	72	XA2	15	30AWG	BLU		BCD .4
XA7	74	XA2	16	30AWG	BLU		BCD .2
XA7	76	XA2	17	30AWG	BLU		BCD .1
XA7	78	XA2	18	30AWG	BLU		BCD .08
XA7	80	XA2	19	30AWG	BLU		BCD .04
XA7	82	XA2	20	30AWG	BLU		BCD .02
XA7	84	XA2	21	30AWG	BLU		BCD .01
XA7	47	XA1	75	30AWG	BLU		BCD 10
XA7	61	XA1	73	30AWG	BLU		BCD 8
XA7	63	XA1	71	30AWG	BLU		BCD 4
XA7	65	XA1	69	30AWG	BLU		BCD 2
XA7	67	XA1	67	30AWG	BLU		BCD 1
XA7	69	XA1	65	30AWG	BLU		BCD .8
XA7	71	XA1	63	30AWG	BLU		BCD .4
XA7	73	XA1	61	30AWG	BLU		BCD .2
XA7	75	A16-XA1	59	30AWG	BLU		BCD .1
XA7	77	XA1	57	30AWG	BLU		BCD .08
XA7	79	XA1	55	30AWG	BLU		BCD .04
XA7	81	XA1	53	30AWG	BLU		BCD .02
XA7	83	XA1	51	30AWG	BLU		BCD .01
XA2	23	XA3	15	30AWG	BLU		40 KHZ CLOCK
XA2	70	XA3	27	30AWG	BLU		SECT. COUNT LOAD
XA2	72	XA3	31	30AWG	BLU		SECT. CARRY
XA2	73	(A15J1)P8	26	24AWG	WHT		SWP ADD (LSB) BIT 1
XA2	74	(A15J1)P8	8	24AWG	WHT		SWP ADD (LSB) BIT 2
XA2	75	(A15J1)P8	27	24AWG	WHT		SWP ADD (LSB) BIT 3
XA2	76	(A15J1)P8	9	24AWG	WHT		SWP ADD (LSB) BIT 4
XA2	77	(A15J1)P8	28	24AWG	WHT		SWP ADD (LSB) BIT 5
XA2	78	(A15J1)P8	10	24AWG	WHT		SWP ADD (LSB) BIT 6
XA2	79	(A15J1)P8	29	24AWG	WHT		SWP ADD (LSB) BIT 7
XA2	80	(A15J1)P8	11	24AWG	WHT		SWP ADD (LSB) BIT 8
XA2	81	(A15J1)P8	30	24AWG	WHT		SWP ADD (LSB) BIT 9
XA2	82	(A15J1)P8	12	24AWG	WHT		SWP ADD (LSB) BIT 10
XA2	83	(A15J1)P8	31	24AWG	WHT		SWP ADD (LSB) BIT 11
XA2	84	(A15J1)P8	13	24AWG	WHT		SWP ADD (LSB) BIT 12
XA2	71	XA2	89	30AWG	BLU		CLEAR GND
XA3	9	XA3	17	30AWG	BLU		40 KHZ CLOCK
XA3	13	XA6	33	30AWG	BLU		RAM LATCH LOAD

Table 5-1. Connector Plate Assembly A16 Wire List - Continued

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
XA3	17	XA6	11	30AWG	BLU		RAM READ CLOCK
XA3	19	XA6	19	30AWG	BLU		RAM READ/WRITE
XA3	23	XA4	51	30AWG	BLU		SWEEP CARRY
XA3	33	XA4	53	30AWG	BLU		X-AXIS CARRY
XA3	39	XA3	41	30AWG	BLU		40-KHZ CLOCK
XA3	36	(A14J1)P7	11	24AWG	WHT		VCO GUIDE
XA3	43	XA3	53	30AWG	BLU		PROM A6 IN
XA3	45	XA3	55	30AWG	BLU		PROM A5 IN
XA3	47	XA1	15	30AWG	BLU		SWEEP WIDTH
XA3	49	XA2	9	30AWG	BLU		MSB BCD/BPIN
XA3	68	(A8J11)P1	6	24AWG	WHT		VCO SEL Q1
XA3	66	(A8J11)P1	7	24AWG	WHT		VCO SEL Q2
XA3	74	(A12J1)P5	6	24AWG	WHT		XO SEL 01
XA3	72	(A12J1)P5	7	24AWG	WHT		XO SEL 02
XA3	70	(A12J1)P5	8	24AWG	WHT		XO SEL 03
XA3	81	XA6	81	30AWG	BLU		RAM MARKER
XA3	83	XA5	29	30AWG	BLU		MARKER OUT
XA3	78	(A15J1)P8	19	24AWG	WHT		HI LIM BLANK
XA3	66	(A13J1)P6	6	24AWG	WHT		VCO SEL 02
XA3	74	(A14J1)P7	8	24AWG	WHT		XO SEL 01
XA3	72	(A14J1)P7	9	24AWG	WHT		XO SEL 02
XA3	70	(A14J1)P7	10	24AWG	WHT		XO SEL 03
XA3	66	(A9J1)P2	6	24AWG	WHT		IF CONTROL
XA3	29	XA4	37	30AWG	BLU		RETRACE UNBLANK
XA3	79	XA5	67	30AWG	BLU		FREQ LIMIT CONTROL
XA4	11	(A16J3)P11	CTR				X OUT (TYPE 41937 DBL SHIELD
XA4	12	(A16J3)P11	GND				X OUT SHIELD (TYPE SHIELD)
XA4	13	XA5	61	30AWG	WHT		X IN
XA4	14	XA5	62	30AWG	BLK		X IN SHIELD
XA4	15	XA5	31	30AWG	WHT		Y IN
XA4	16	XA5	32	30AWG	BLK		Y IN SHIELD
XA4	17	(A16J4)P12	CEN				Y OUT (TYPE 41937 DBL SHIELD
XA4	18	(A16J4)P12	GND				Y OUT SHIELD (TYPE SHIELD)
XA4	19	XA3	52	30AWG	BLU		Z OUT
XA4	21	A16-J2	F9	30AWG	BLU		MARKER SWITCH
XA4	26	A16-J2	P7	30AWG	BLU		BITE LAMP
XA4	28	A16-E2		24AWG	BLK		BITE LAMP RTN
XA4	31	XA6	39	30AWG	BLU		RAM SWP ADD (LSB) BIT 1
XA4	33	XA6	41	30AWG	BLU		RAM SWP ADD (LSB) BIT 2
XA4	35	XA6	43	30AWG	BLU		RAM SWP ADD (LSB) BIT 3
XA4	37	XA6	45	30AWG	BLU		RAM SWP ADD (LSB) BIT 4
XA4	39	XA6	49	30AWG	BLU		RAM SWP ADD (LSB) BIT 5
XA4	41	XA6	50	30AWG	BLU		RAM SWP ADD (LSB) BIT 6

Table 5-1. Connector Plate Assembly A16 Wire List - Continued

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
XA4	43	XA6	51	30AWG	BLU		RAM SWP ADD (LSB) BIT 7
XA4	45	XA6	52	30AWG	BLU		RAM SWP ADD (LSB) BIT 8
XA4	47	XA6	63	30AWG	BLU		RAM SWP ADD (LSB) BIT 9
XA4	49	XA6	64	30AWG	BLU		RAM SWP ADD (LSB) BIT 10
XA4	59	XA3	9	30AWG	BLU		40 KHz CLOCK
XA4	61	XA6	58	30AWG	BLU		RAM STORE ADD (MSB) BIT 10
XA4	63	XA6	57	30AWG	BLU		RAM STORE ADD (MSB) BIT 9
XA4	65	XA6	56	30AWG	BLU		RAM STORE ADD (MSB) BIT 8
XA4	67	XA6	55	30AWG	BLU		RAM STORE ADD (MSB) BIT 7
XA4	69	XA6	54	30AWG	BLU		RAM STORE ADD (MSB) BIT 6
XA4	71	XA6	53	30AWG	BLU		RAM STORE ADD (MSB) BIT 5
XA4	73	XA6	46	30AWG	BLU		RAM STORE ADD (MSB) BIT 4
XA4	75	XA6	44	30AWG	BLU		RAM STORE ADD (MSB) BIT 3
XA4	77	XA6	42	30AWG	BLU		RAM STORE ADD (MSB) BIT 2
XA4	79	XA6	40	30AWG	BLU		RAM STORE ADD (MSB) BIT 1
XA4	81	XA6	13	30AWG	BLU		RAM WRITE CLOCK
XA4	83	XA3	15	30AWG	BLU		40 KHZ CLOCK
XA4	80	(A15J1)P8	32	24AWG	WHT		2 MHZ SWP ADD BIT 1
XA4	78	(A15J1)P8	14	24AWG	WHT		2 MHZ SWP ADD BIT 2
XA4	76	(A15J1)P8	33	24AWG	WHT		2 MHZ SWP ADD BIT 3
XA4	74	(A15J1)P8	15	24AWG	WHT		2 MHZ SWP ADD BIT 4
XA4	72	(A15J1)P8	34	24AWG	WHT		2 MHZ SWP ADD BIT 5
XA4	70	(A15J1)P8	16	24AWG	WHT		2 MHZ SWP ADD BIT 6
XA4	68	(A15J1)P8	35	24AWG	WHT		2 MHZ SWP ADD BIT 7
XA4	66	(A15J1)P8	17	24AWG	WHT		2 MHZ SWP ADD BIT 8
XA4	64	(A15J1)P8	36	24AWG	WHT		2 MHZ SWP ADD BIT 9
XA4	62	(A15J1)P8	18	24AWG	WHT		2 MHZ SWP ADD BIT 10
XA4	21	(A11J1)P8	7	24AWG	WHT		MARKER SWITCH
XA4	82	XA4	84	30AWG	BLU		JUMPER
XA4	55	XA4	57	30AWG	BLU		JUMPER
XA5	19	XA6	33	30AWG	BLU		SAMPLE CLOCK
XA5	21	XA6	21	30AWG	BLU		REFRESH VIDEO BIT 1
XA5	22	XA6	22	30AWG	BLU		REFRESH VIDEO BIT 2
XA5	23	XA6	23	30AWG	BLU		REFRESH VIDEO BIT 3
XA5	24	XA6	24	30AWG	BLU		REFRESH VIDEO BIT 4
XA5	25	XA6	25	30AWG	BLU		REFRESH VIDEO BIT 5
XA5	26	XA6	26	30AWG	BLU		REFRESH VIDEO BIT 6
XA5	27	XA6	27	30AWG	BLU		REFRESH VIDEO BIT 7
XA5	28	XA6	28	30AWG	BLU		REFRESH VIDEO BIT 8
XA5	45	XA6	39	30AWG	BLU		RAM SWP ADD BIT 1
XA5	46	XA6	41	30AWG	BLU		RAM SWP ADD BIT 2
XA5	47	XA6	43	30AWG	BLU		RAM SWP ADD BIT 3
XA5	48	XA6	45	30AWG	BLU		RAM SWP ADD BIT 4
XA5	49	XA6	49	30AWG	BLU		RAM SWP ADD BIT 5
XA5	50	XA6	50	30AWG	BLU		RAM SWP ADD BIT 6

Table 5-1. Connector Plate Assembly A16 Wire List - Continued

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
XA5	51	XA6	51	30AWG	BLU		RAM SWP ADD BIT 7
XA5	52	XA6	52	30AWG	BLU		RAM SWP ADD BIT 8
XA5	53	XA6	63	30AWG	BLU		RAM SWP ADD BIT 9
XA5	54	XA6	64	30AWG	BLU		RAM SWP ADD BIT 10
XA5	59	A16-J2	K7	30AWG	BLU		CENT ADJ WIPER
XA5	60	A16-J2	E7	30AWG	BLU		CENT ADJ HI
XA5	63	A16-J2	M7	30AWG	BLU		CENT ADJ LO
XA5	70	XA6	77	30AWG	BLU		DIG VIDEO BIT 1
XA5	71	XA6	75	30AWG	BLU		DIG VIDEO BIT 2
XA5	72	XA6	60	30AWG	BLU		DIG VIDEO BIT 3
XA5	73	XA6	61	30AWG	BLU		DIG VIDEO BIT 4
XA5	74	XA6	76	30AWG	BLU		DIG VIDEO BIT 5
XA5	75	XA6	78	30AWG	BLU		DIG VIDEO BIT 6
XA5	76	XA6	62	30AWG	BLU		DIG VIDEO BIT 7
XA5	77	XA6	59	30AWG	BLU		DIG VIDEO BIT 8
XA5	79	XA6	17	30AWG	BLU		A/D ENABLE
XA5	81	XA6	15	30AWG	WHT		4 MHZ CLOCK
XA5	82	XA6	16	30AWG	BLK		4 MHZ CLOCK SHIELD
XA5	83	(A10J2)P9	CTR				LOG VIDEO (TYPE 11937 DBL SHLD) 20"
XA5	84	(A10J2)P9	GND				LOG VIDEO SHIELD (TYPE 11937 DBL SHLD) 20"
XA6	15	XA1	39	30AWG	WHT		4 MHZ CLOCK
XA6	16	A1	41	30AWG	BLK		4 MHZ CLOCK SHIELD
XA6	83	A6	89	30AWG	BLU		GND (MARKER)
XA6	29	A6	30	30AWG	BLU		
XA6	31	XA6	32	30AWG	BLU		
XA1	16	A9	7	24AWG	WHT		IF BW CONTROL
XA1	16	A11	6	24AWG	WHT		SWEEP WIDTH
XA1	16	A15	37	24AWG	WHT		SWEEP WIDTH
XA1	15	A16J2	P9	30AWG	BLU		SWEEP WIDTH
XA1	29	(A13J5)P10	CTR				TRANS VCO (TYPE 11937, DBL SHLD 30")
XA1	30	(A13J5)P10	GND				TRANS VCO SHIELD (TYPE 11937, DBL SHLD 30")
XA1	15	XA1	16	30AWG	BLU		SWEEP WIDTH
P1(J11A8)	1	A16-E1		24AWG	RED		+5VDC
P1(J11A8)	2	A16-E2		24AWG	BLK		GND
P1(J11A8)	3	A16-E3		24AWG	RED		+15VDC
P1(J11A8)	4	A16-E4		24AWG	VIO		-15VDC
P1(J11A8)	6	XA3	68	24AWG	WHT		VCO SEL Q1
P1(J11A8)	7	XA3	66	24AWG	WHT		VCO SEL Q2
P1(J11A8)	8	A16-E2		24AWG	BLK		VCO SEL Q3
P2(J1A9)	1	A16-E1		24AWG	RED		+5VDC
P2(J1A9)	2	A16-E1		24AWG	BLK		GND

Table 5-1. Connector Plate Assembly A16 Wire List - Continued

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
P2(J1A9)	3	A16-E3		24AWG	RED		+15VDC
P2(J1A9)	4	A16-E4		24AWG	VIO		-15VDC
P2(J1A9)	6	XA3	66	24AWG	WHT		IF CONTROL
P2(J1A9)	7	XA1	16	24AWG	WHT		IF BW CONTROL
P3(J1A10)	2	A16-E2		24AWG	BLK		GND
P3(J1A10)	3	A16-E3		24AWG	RED		+15VDC
P3(J1A10)	4	A16-E4		24AWG	VIO		-15VDC
P4(J1A11)	2	A16-E2		24AWG	BLK		GND
P4(J1A11)	4	A16-E4		24AWG	VIO		-15VDC
P4(J1A11)	6	XA1	16	24AWG	WHT		SWEEP WIDTH
P4(J1A11)	7	XA4	21	24AWG	WHT		MARKER SWITCH
P4(J1A11)	1	A16-E1		24AWG	RED		+5VDC
P4(J1A11)	8	XA7	20	24AWG	WHT		60 MHZ TEST SWITCH
P5(J1A12)	1	A16-E1		24AWG	RED		+5VDC
P5(J1A12)	2	A16-E2		24AWG	BLK		GND
P5(J1A12)	6	XA3	74	24AWG	WHT		XO SEL 01
P5(J1A12)	7	XA3	72	24AWG	WHT		XO SEL 02
P5(J1A12)	8	XA3	70	24AWG	WHT		XO SEL 03
P6(J1A13)	1	A16-E1		24AWG	RED		+5VDC
P6(J1A13)	2	A16-E2		24AWG	BLK		GND
P6(J1A13)	3	A16-E3		24AWG	RED		+15VDC
P6(J1A13)	4	A16-E4		24AWG	VIO		-15VDC
P6(J1A13)	6	XA3	66	24AWG	WHT		VCO SEL Q2
P7(J1A14)	1	A16-E1		24AWG	RED		+5VDC
P7(J1A14)	2	A16-E2		24AWG	BLK		GND
P7(J1A14)	3	A16-E3		24AWG	RED		+15VDC
P7(J1A14)	4	A16-E4		24AWG	VIO		-15VDC
P7(J1A14)	6	A16-E5		24AWG	RED		+36VDC
P7(J1A14)	8	XA3	74	24AWG	WHT		XO SEL 01
P7(J1A14)	9		72	24AWG	WHT		XO SEL 02
P7(J1A14)	10		70	24AWG	WHT		XO SEL 03
P7(J1A14)	11	XA3	36	24AWG	WHT		VCO GUIDE
P8(J1A15)	1	A16-E1		24AWG	RED		+5VDC
P8(J1A15)	2	A16-E2		24AWG	BLK		DIGITAL GND
P8(J1A15)	3	A16-E3		24AWG	RED		+15VDC
P8(J1A15)	4	A16-E4		24AWG	VIO		-15VDC
P8(J1A15)	5	A16-E2		24AWG	BLK		ANALOG GND
P8(J1A15)	26	XA2	73	24AWG	WHT		20 MHZ SWP BIT 1
P8(J1A15)	8	XA2	74	24AWG	WHT		20 MHZ SWP BIT 2
P8(J1A15)	27	XA2	75	24AWG	WHT		20 MHZ SWP BIT 3
P8(J1A15)	9	XA2	76	24AWG	WHT		20 MHZ SWP BIT 4
P8(J1A15)	28	XA2	77	24AWG	WHT		20 MHZ SWP BIT 5
P8(J1A15)	10	XA2	78	24AWG	WHT		20 MHZ SWP BIT 6
P8(J1A15)	29	XA2	79	24AWG	WHT		20 MHZ SWP BIT 7
P8(J1A15)	11	XA2	80	24AWG	WHT		20 MHZ SWP BIT 8

Table 5-1. Connector Plate Assembly A16 Wire List - Continued

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
P8(J1A15)	30	XA2	81	24AWG	WHT		20 MHZ SWP BIT 9
P8(J1A15)	12	XA2	82	24AWG	WHT		20 MHZ SWP BIT 10
P8(J1A15)	31	XA2	83	24AWG	WHT		20 MHZ SWP BIT 11
P8(J1A15)	13	XA2	84	24AWG	WHT		20 MHZ SWP BIT 12
P8(J1A15)	32	XA4	80	24AWG	WHT		2 MHZ SWP BIT 1
P8(J1A15)	14	XA4	78	24AWG	WHT		2 MHZ SWP BIT 2
P8(J1A15)	33	XA4	76	24AWG	WHT		2 MHZ SWP BIT 3
P8(J1A15)	15	XA4	74	24AWG	WHT		2 MHZ SWP BIT 4
P8(J1A15)	34	XA4	72	24AWG	WHT		2 MHZ SWP BIT 5
P8(J1A15)	16	XA4	70	24AWG	WHT		2 MHZ SWP BIT 6
P8(J1A15)	35	XA4	68	24AWG	WHT		2 MHZ SWP BIT 7
P8(J1A15)	17	XA4	66	24AWG	WHT		2 MHZ SWP BIT 8
P8(J1A15)	36	XA4	64	24AWG	WHT		2 MHZ SWP BIT 9
P8(J1A15)	18	XA4	62	24AWG	WHT		2 MHZ SWP BIT 10
P8(J1A15)	37	XA1	16	24AWG	WHT		SWEEP WIDTH
P8(J1A15)	19	XA3	78	24AWG	WHT		HI LIM BLANK
A16-J1	H	A16-E6		20AWG	RED		+5VDC
A16-J1	J	A16-E2		20AWG	BLK		+5VDC RTN
A16-J1	K	A16-E3		24AWG	RED		+15VDC
A16-J1	L	A16-E2		24AWG	BLK		+15VDC RTN
A16-J1	M	A16-E4		24AWG	VIO		-15VDC
A16-J1	N	A16-E2		24AWG	BLK		-15VDC RTN
A16-J1	P	A16-E5		24AWG	RED		+36VDC
A16-J1	R	A16-E2		24AWG	BLK		+36VDC RTN
A16-J1	U	A16-E2		24AWG	BLK		SHIELD GND
A16-E7		A16-E1		20AWG	RED		+3VDC
A16-J2	P1	XA7	14	30AWG	WHT		DATA
A16-J2	P3	XA7	13	30AWG	BLK		DATA RTN
A16-J2	M1	XA7	16	30AWG	WHT		CLOCK
A16-J2	M3	XA7	15	30AWG	BLK		CLOCK RTN
A16-J2	K1	XA7	17	30AWG	WHT		LOAD
A16-J2	K3	XA7	18	30AWG	BLK		LOAD RTN
A16-J2	M9	XA7	24	30AWG	BLU		FREQ HOLD
A16-J2	K9	XA7	20	30AWG	BLU		60 MHZ TEST
A16-J2	H9	A16-E6		24AWG	RED		+5VDC
A16-J2	F9	XA4	21	30AWG	BLU		RF TEST GENERATOR
A16-J2	P7	XA4	26	30AWG	BLU		CKT TEST LAMP
A16-J2	M7	XA5	63	30AWG	BLU		CENTER ADJ 1
A16-J2	K7	XA5	59	30AWG	BLU		CENTER ADJ 2
A16-J2	E7	XA5	60	30AWG	BLU		CENTER ADJ 3
P11(A16J3)	CENT	XA4	11			8	X
P11(A16J3)	GND	XA4	12			8	X RTN
P12(A16J4)	CENT	XA4	17			8	Y
P12(A16J4)	GND	XA4	18			8	Y RTN
P13(A16J5)	CENT	XA3	51			8	Z
P13(A16J5)	GNCT	XA3	4			8	Z RTN

Table 5-2. Special Purpose Cable Assembly W14 Wire List

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
W14J2	20	J1	17	24AWG	WHT		LAMP CONTROL
W14J2	21	J1	18	24AWG	WHT		LAMP RIN
W14J2	22	P1	P9	24AWG	WHT		SWEEP WIDTH
W14J2	23	P1	M9	24AWG	WHT		REQ HOLD
W14J2	24	P1	K9	24AWG	WHT		60 MHz TEST
W14J2	25	P1	N0	24AWG	BLK		GND
W14J2	26	P1	H9	24AWG	RED		+5VDC
W14J2	27	P1	F9	24AWG	WHT		FREQ MARKER
W14J2	28	P1	P7	24AWG	WHT		CKT TEST LAMP
W14J2	30	P1	M7	24AWG	WHT		CENTER ADJ 1
W14J2	31	P1	K7	24AWG	WHT		CENTER ADJ 2
W14J2	32	P1	E7	24AWG	WHT		CENTER ADJ 3
W14J2	35	P1	L0	24AWG	BLK		SHIELD GND
W14J1	11	P1	P1	24AWG	WHT		DATA
W14J1	12	P1	P3	24AWG	BLK		DATA RTN
W14J1	13	P1	M1	24AWG	WHT		CLOCK
W14J1	14	P1	M3	24AWG	BLK		CLOCK RTN
W14J1	15	P1	K1	24AWG	WHT		LOAD
W14J1	16	P1	K3	24AWG	BLK		LOAD RTN
W14J1	17	P2	20	24AWG	WHT		LAMP CONTROL
W14J1	18	J2	21	24AWG	WHT		LAMP RTN
W14J1	22	P1	D1	24AWG	BLK		SHIELD GND

Table 5-3. Special Purpose Cable Assembly W15 Wire List

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
J3	H	P1	H	20AWG	RED		+5VDC
J3	J	P1	J	20AWG	BLK		+5VDC RTN
J3	K	P1	K	24AWG	RED		+15VDC
J3	L	P1	L	24AWG	BLK		+15VDC RTN
J3	M	P1	M	24AWG	VIO		-15VDC
J3	N	P1	N	24AWG	BLK		-15VDC RTN
J3	P	P1	P	24AWG	RED		+36VDC
J3	R	P1	R	24AWG	BLK		+36VDC RTN
J3	U	P1	U	24AWG	BLK		SHIELD GND

Table 5-4. Special Purpose Cable Assembly W20 Wire List

FROM CONNECTOR		TO CONNECTOR		WIRE			FUNCTION/REMARKS
REF DES	PIN	REF DES	PIN	SIZE	COLOR	LENGTH	
J4	A	M1	1	20AWG	GRY	9.0	115VAC
J4	D	M1	2	20AWG	GRY	9.0	NEUTRAL
J4	E	J4	F	20AWG	WHT	4.5	INTERLOCK
J4	H		E1	20AWG	BLK	4.5	SHIELD GND

APPENDIX A

REFERENCES

A-1. Technical Manuals.

TM 32-5865-007-10	Operation Instructions, Special Purpose Countermeasures System, AN/ALQ-151(V)1.
TM 32-5865-007-20&P	Organizational Maintenance Instructions Including Repair Parts and Special Tools List, Special Purpose Countermeasures System AN/ALQ-151(V)1.
TM 32-5865-012-10	Operation Instruction, Special Purpose Countermeasures System, AN/ALQ-151(V)2.
TM 32-5865-012-20	Organizational Maintenance Instructions Special Purpose Countermeasures System AN/ALQ-151(V)2.
TM 32-5811-015-40&P	General Support (Intermediate Support) Maintenance Manual and Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools List, Panoramic Indicator, IP-1251A/USQ and Indicator Control, C-10027/USQ.
TM 38-230	Preservation Packaging, and Packing of Military Supplies and Equipments
TM 38-260	Preparation and Inspection of Industrial Production Equipment for Storage and Shipment
TM 738-750	The Army Maintenance Management System (TAAMS)
TM 740-90-1	Administrative Storage of Equipment
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)
TM 750-246-4	Inspection Criteria, Inspectors Quality Control
TM 9-123	Painting, Field Instructions

A-2. Technical Bulletins.

TB SIG 222	Solder and Soldering
TB SIG 355-1	Depot Inspection Standards for Repaired Signal Equipment
TB SIG 355-2	Depot Inspection Standard for Refinishing Signal Equipment
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment
TB SIG 746-10	Field Instructions for Painting and Preserving Electronics Command Equipment

A-3. Supply Manuals.

SM 9-1-C5300	Hardware and Abrasives
SM 9-1-5200	Measuring Tools
SM 9-1-6800	Chemicals and Chemical Products
SM 9-1-8000	Brushes, Paints, Sealers, and Adhesives
SM 9-1-8100	Containers, Packaging, and Packaging Supplies
SM 10-1-9100	Fuels, Lubricants, Oils, and Waxes

A-4. Supply Bulletins.

SB 11-30	Transportation, Storage, Testing, Shelf Life, and Quantity Unit Pack
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment
SB 38-100	Preservation, Packaging and Packing Materials, Supplies and Equipment Used by the Army
SB 700-50	Expandable Items
SB 708-42	Federal Supply Code for Manufacturers, United States and Canada, Code to Name, Cataloging Handbook H4-2

A-5. Pamphlets.

DA PAM 310-1	Index of Administrative Publications
DA PAM 310-2	Index of Blank Forms
DA PAM 310-3	Index of Doctrinal, Training, and Organizational Publications
DA PAM 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins and Lubrication Orders
DA PAM 310-6	Index of Supply Catalogs and Supply Manuals
DA PAM 310-7	Index of Current Modification Work Orders

A-6. Army Regulations.

AR 310-25	Dictionary of United States Army Terms
AR 310-50	Authorized Abbreviations and Brevity Codes
AR 55-38	Discrepancy in Shipment Report
AR-700-42	Classification, Reclassification, Maintenance, Insurance, and Reporting of Maintenance Training Aircraft

A-7. Forms.

DA Form 2028	Recommended Changes to DA Technical Manuals, Parts Lists or Supply Manual 7, 8, or 9
DA Form 2404	Equipment Inspection and Maintenance Work Sheet
DA Form 2407	Maintenance Request
DA Form 2408	Equipment Log Book Assembly Instructions for General Equipment
DA Form 2408-1	Equipment Daily or Monthly Log
DA Form 2408-5	Equipment Modification Record

DA Form 2408-6	Equipment Maintenance Record (Support Echelons -Field & Depot)
DA Form 2408-9	Equipment Transfer Record
DA Form 6	Report Damaged or Improper Shipment
DA Form 9-1	Material Inspection Tag
SF 368	Quality Deficiency Report

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

a. The Maintenance Allocation Chart identifies the maintenance operations that must be performed. It assigns each of those operations to the lowest level of maintenance authorized to perform the complete task, or any part of the task, in terms of availability of time, tools, test and support equipment, skills and employment of the subsystem.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall responsibility for the performance of maintenance functions for the Panoramic Indicator IP-1251A/USQ and Indicator Control C-10027/USQ.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions on explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS.

a. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical and /or electrical characteristics with established standards through examination.

b. **Test.** To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. **Service.** Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), preserve, drain, paint or replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. **Adjust.** To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. **Aline.** To adjust specified variable elements of an item to bring about optimum or desired performance.

f. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments or test, measuring and diagnostic equipment used in precision measurement.Consists of comparisons of two instruments, one of which is a certified standard of known accuracy; to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. **Install.** The act of emplacing, seating, or fixing into position an item, part, or module/component/assembly in a manner to allow the proper functioning of an equipment or system.

h. **Replace.** The act of substituting a serviceable like type part, susbassembly, or module/component/assembly for an unserviceable counterpart.

i. **Repair.** The application of maintenance services[1] or other maintenance actions[2] to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module, component, assembly, of an item or system.

j. **Overhaul.** The maintenance effort (services/actions) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publication. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipments/components.

B-3. COLUMN ENTRIES USED IN THE MAC.

a. **Column 1, Group Number.** Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. **Column 2, Component/Assembly.** Column 2 contains the names of components, assemblies, subassemblies, and modules with the next higher assembly.

c. **Column 3, Maintenance Functions.** Column 3 lists the function to be performed on the item listed in column 2. (For detailed explanation of these funciton, see paragraph B-2.)

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[1] Services - inspect, test, service, adjust, aline, calibrate, or replace.
[2] Action - welding, grinding, riveting, straightening, facing, remachining, or resurfacing.

d. **Column 4, Maintenance Category.**

(1) Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform the maintenance function, at the indicated level of maintenance.

(2) If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate "work time" figures will be shown for each level. The number of man-hours specified by the "work time" figure represents the average time required to restore an item (assembly/subassembly/component/module/end item/system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the Maintenance Allocation Chart. The symbol disignations for the various maintenance levels are as follows:

C - Operator or crew.
O - Organizational maintenance.
F - Direct support maintenance.
H - General support maintenance.
D - Depot maintenance.

e. **Column 5, Tools and Equipment.** Column 5 specifies, by code, those common tool sets (not individual tools), special tools and test equipment required to perform the designated function.

f. **Column 6, Remarks.** Column 6 contains a letter code in alphabetical order which is keyed to the remarks contained in Section IV. If no remarks were required, column 6 remains blank and Section IV is deleted.

B-4. COLUMN ENTRIES USED IN TOOL AND TEST EQUIPMENT REQUIREMENTS (SECTION III).

a. **Column 1, Tool or Test Equipment Reference Code.** The tool and test equipment reference code correlates with a maintenance function on the identified end item or component.

b. **Column 2, Maintenance Category.** The lowest level of maintenance authorized to use the tool or test equipment.

c. **Column 3, Nomenclature.** Name or identification of the tool or test equipment.

d. **Column 4, National/NATO Stock Number.** The National or NATO stock number of tool or test equipment.

e. **Column 5, Tool Number.** The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN SECTION IV.

a. **Reference Code.** The code scheme recorded in Column 1, Section III.

b. **Remarks.** This column lists information pertinent to the maintenance function being performed as indicated on the MAC, Section II. If no remarks are required, column 6 in Section II remains blank and Section IV is deleted.

SECTION II. MAINTENANCE ALLOCATION CHART FOR PANORAMIC INDICATOR IP-1251A/USQ AND INDICATOR CONTROL C-10027/USQ

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
2301	MAIN FRAME ASSEMBLY	REPLACE					X		A
		REPAIR					X		A
2302	FRONT PANEL ASSEMBLY	REPLACE					X		A
		REPAIR					X		A
31	INDICATOR CONTROL, PANORAMIC INDICATOR	INSPECT				0.5		4,7	
		TEST				0.5		2,8	B
		ADJUST				0.6		4,5,7	
		SERVICE				0.2		7	
		REPAIR				0.7		2,4,5,7,8	
3101	ELECTRONIC COMPONENT	REPLACE				0.4		7	
		REPAIR					X		A
3102	WIRING HARNESS, BRAN	REPLACE					X		A
		REPAIR					X		A
3103	CABLE ASSEMBLY, SPEC	REPLACE					X		A
		REPAIR					X		A
3104	CABLE ASSEMBLY, RADI	REPLACE					X		A
		REPAIR					X		A
3105	CABLE ASSEMBLY, RADI	REPLACE					X		A
		REPAIR					X		A
3106	COVER, ACCESS BOTTOM	INSPECT				0.1		7	
		REPLACE				0.2		7	
		REPAIR				0.3		3,6,7	
3107	COVER, ACCESS TOP	INSPECT				0.1		7	
		REPLACE				0.2		7	
		REPAIR				0.3		3,6,7	

SECTION II. MAINTENANCE ALLOCATION CHART FOR PANORAMIC INDICATOR IP-1251A/USQ AND INDICATOR CONTROL C-10027/USQ - CONT.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
3108	CHASSIS, ELECTRICAL	REPLACE					X		A
		REPAIR					X		A
3109	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3110	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3111	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3112	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3113	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3114	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	

SECTION II. MAINTENANCE ALLOCATION CHART FOR PANORAMIC INDICATOR IP-1251A/USQ AND INDICATOR CONTROL C-10027/USQ - CONT.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
3115	CABLE ASSEMBLY,RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3116	CABLE ASSEMBLY, RADIO	INSPECT				0.5			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3117	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3118	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3119	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3120	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	
3121	CABLE ASSEMBLY, RADIO	INSPECT				0.1			
		TEST				0.3		1	
		REPLACE				0.3		4,7	
		REPAIR				0.3		4,7	

SECTION II. MAINTENANCE ALLOCATION CHART FOR PANORAMIC INDICATOR IP-1251A/USQ AND INDICATOR CONTROL C-10027/USQ - CONT.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
3122	CABLE ASSEMBLY, RF	REPLACE					X		A
		REPAIR					X		A
3123	CABLE ASSEMBLY, RF	REPLACE					X		A
		REPAIR					X		A
3124	CABLE ASSEMBLY, SPECIAL	REPLACE					X		A
		REPAIR					X		A
3125	CIRCUIT CARD ASSEMBLY A1	REPLACE				0.2		7	
		REPAIR					X		A
3126	CIRCUIT CARD ASSEMBLY A2	REPLACE				0.2		7	
		REPAIR					X		A
3127	CIRCUIT CARD ASSEMBLY A3	INSPECT				0.1			
		TEST				0.5		2,7	B
		REPLACE				0.2		7	
		REPAIR				0.5		2,5,7	B
3128	CIRCUIT CARD ASSEMBLY A4	INSPECT				0.1			
		TEST				0.5		2,7	B
		REPLACE				0.2		7	
		REPAIR				0.5		2,5,7	B
3129	CIRCUIT CARD ASSEMBLY A5	REPLACE				0.2		7	
		REPAIR					X		A
3130	CIRCUIT CARD ASSY, A6	INSPECT				0.1			
		TEST				0.5		2,7	B
		REPLACE				0.2		7	
		REPAIR				0.5		2,5,7	B
3131	CIRCUIT CARD ASSEMBLY A7	INSPECT				0.1			
		TEST				0.5		2,7	B
		REPLACE				0.2		7	
		REPAIR				0.5		2,5,7	B

SECTION II. MAINTENANCE ALLOCATION CHART FOR PANORAMIC INDICATOR IP-1251A/USQ AND INDICATOR CONTROL C-10027/USQ - CONT.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
3132	CIRCUIT CARD ASSEMBLY A9	REPLACE				0.7		5,7	
		REPAIR					X		A
3133	ELECTRONIC COMPONENT	REPLACE				0.7		5,7	
		REPAIR					X		A
3134	ELECTRONIC COMPONENT	REPLACE				0.7		5,7	
		REPAIR					X		A
3135	ELECTRONIC COMPONENT	REPLACE				0.7		5,7	
		REPAIR					X		A
3136	ELECTRONIC COMPONENT	REPLACE				0.7		5,7	
		REPAIR					X		A
3137	ELECTRONIC COMPONENT	REPLACE				0.7		5,7	
		REPAIR					X		A
3138	ELECTRONIC COMPONENT	REPLACE				0.7		5,7	
		REPAIR					X		A
3139	PLATE ASSEMBLY, CONNECTOR	REPLACE					X		A
		REPAIR					X		A
3140	PLATE, SIDE, CARD CAGE	REPLACE					X		A
		REPAIR					X		A
3141	PLATE, SIDE, CARD CAGE	REPLACE					X		A
		REPAIR					X		A

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR PANORAMIC INDICATOR IP-1251A/USQ PANORAMIC INDICATOR INDICATOR CONTROL C-10027/USQ

TOOL OR TEST EQUIP REF CODE	MAINTE-NANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	H	MULTIMETER, DIGITAL	6625-01-139-2512	AN/PSM-45
2	H	TEST SET	6625-01-069-4223	AN/USM-410(V)2
3	H	RIVETER KIT	6665-01-022-4165	HP-200
4	H	MAINTENANCE KIT, ELECTRONIC	6625-01-068-1665	MK-1961/G
5	H	MAINTENANCE KIT, ELECTRONIC	6625-01-068-1666	MK-1962/G
6	H	TOOL KIT, ELECTRONIC EQUIPMENT	5180-00-605-0079	TK-100/G
7	H,D	TOOL KIT	5180-00-610-8177	TK-105/G
8	H	TEST CABLE, AC POWER	(See Appendix E for fabrication instructions.)	N/A

SECTION IV. REMARKS

Reference Codes	*Remarks*
A	Refer to DMWR 32-5811-070 for depot-level removal, replacement, and repair instructions.
B	This LRU/SRU is tested and/or repaired using the AN/USM-410(V)2 Automatic Test Equipment.

APPENDIX C

REPAIR PARTS AND SPECIAL TOOLS LIST

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Section I. INTRODUCTION

C-1. Scope. This appendix lists basic issue items; items troop installed or authorized, repair parts; special tools; test, measurement, and diagnostic equipment (TMDE); and other support equipment required for operation and performance of organizational, direct support, and general support maintenance of the panoramic indicator and indicator control.

C-2. General. This Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed in NSN sequence.

b. Section III. Special Tools List. A list of special tools, TMDE, and support equipment authorized for the performance of maintenance at the organizational, direct support, and general support level.

c. Section IV. National Stock Number and Part Number Index. A list, in ascending numerical sequence, of all National stock numbers appearing in the listings, followed by a list, in alphanumeric sequence, of all part numbers referenced to each illustration figure and item number appearance.

C-3. Explanation of Columns. The following provides an explanation of columns found in the tabular listings:

a. Illustration. This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. The number used to identify each item called out in the illustration.

b. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source Code. Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	Definition
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purpose because essentiality dictates that a minimum quantity be available in the supply system.
PC	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.
KD	An item of a depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	Item included in both a depot overhaul/repair kit and a maintenance kit.
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at the direct support maintenance level.
MH	item to be manufactured or fabricated at the general support maintenance level.
MD	Item to be manufactured or fabricated at the depot maintenance level.
AO	Item to be assembled at organizational level.

AF - Item to be assembled at direct support maintenance level.

AH - Item to be assembled at general support maintenance level.

AD - Item to be assembled at depot maintenance level.

XA - Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.

XB - Item is not procured or stocked. If not available through salvage, requisition.

XD - A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XA, XD, and aircraft support items as restricted by AR 700-42.

(2) Maintenance Code. Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

Code		Application/Explanation
C	-	Crew or operator maintenance performed within organizational maintenance.
O	-	Support item is removed, replaced, used at the organizational level.
I	-	Support item is removed, replaced, used by the direct support element of integrated direct support maintenance.
F	-	Support item is removed, replaced, used at the direct support level.
H	-	Support item is removed, replaced, used at the general support level.
D	-	Support items that are removed, replaced, used at depot, mobile depot, specialized repair activity only.

NOTE

Codes "I" and "F" will be considered the same by direct support units.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following codes:

Code		Application/Explanation
O	-	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	-	The lowest maintenance level capable of complete repair of the support item is the direct support level.
H	-	The lowest maintenance level capable of complete repair of the support item is the general support level.
D	-	The lowest maintenance level capable of complete repair of the support item is the depot level, performed by the Materiel Support Command Depot Activity.
L	-	Repair restricted to designated specialized repair activity.
Z	-	Nonreparable. No repair is authorized.
B	-	No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

(3) Recoverability Code. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Recoverability Codes		Definition
Z	-	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O	-	Reparable item. When uneconomically reparable, condemn and dispose at organizational level.
F	-	Reparable item. When uneconomically reparable, condemn and dispose at the direct support level.

H	-	Reparable item. When uneconomically reparable, condemn and dispose at the general support level.
D	-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	-	Reparable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.
A	-	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items. For BIIL and ITIAL, see explanation of description column, paragraph f.

NOTE

When a stock-numbered item is requisitioned, the repair part received may have a different part number then the part being replaced.

e. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc. For BIIL and ITIAL, see explanation of description column, paragraph f.

f. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. (In BIIL and ITIAL only the following will be used: "The last line for each item in the BIIL and ITIAL indicates the part number with the FSCM in parentheses.")

Items that are included in kits and sets are listed below the name of the kit or set with the quantity of each item in the kit or set indicated in the quantity incorporated in unit column. When the part to be used differs between serial numbers of the same model, the effective serial numbers are shown as the last line of the description. In the Special Tools List, the initial Basis of Issue (BOI) appears as the last line in the entry for each special tool, TMDE, and support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased accordingly.

g. Unit of Measure (U/M). Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. Quantity Incorporated in Unit. Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers, etc.).

C-4. Special Information.

a. Repair parts kits and gasket sets are listed at the end of the repair parts listing for the last figure containing parts of the kit.

b. NSN's that are missing from P source coded items have been applied for and will be added to this TM by future change or revision when they are entered in the Army Master Data File (AMDF). Until the NSN's are established and published, submit exception requisition to Commander, Vint Hill Farms Station, Warrenton, Virginia, Attn: Electronics Materiel Readiness Activity (NICP).

c. The AN/TSQ-114 uses three levels of maintenance: organizational, general support, and depot. All direct support is considered general support.

C-5. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Unknown.

(1) First. Using the table of contents, determine the assembly or subassembly within the repair part belongs. This is necessary since illustrations are prepared for assemblies or subassemblies, and listings are divided into the same groups.

(2) Second. Find the illustration covering the assembly or subassembly to which the repair part belongs.

(3) Third. Identify the repair part on the illustration and not the illustration figure and item number of the repair part.

(4) Fourth. Using the Repair Parts Listing, find the figure and item number noted on the illustration.

b. When National Stock Number or Part Number is Known.

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. This index is in ascending NSN sequence followed by a list of part numbers in ascending alphamerical sequence, cross-referenced to the illustration figure number and item number.

(2) Second. After finding the figure and item number, locate the figure and item number in the repair parts list.

C-6. Abbreviations.

Abbreviations	Explanation
ADPTR	Adapter
BD	Board
BR	Branched
CAP	Capacitor
CCA	Circuit Card Assembly [also called Printed Wiring Assembly (PWA)]
CER	Ceramic
CG	Cage
CHAS	Chassis
CKT	Circuit
CL	Clinch
CLP	Clamp
CMPNT	Component
CMPSN	Composition
DGTL	Digital
DSPL	Display
DVC	Device
DWR	Drawer
ELCTLT	Electrolitic
ELEC	Electronic
EJCTR	Ejector
EXT	External
FSTNR	Fastener
FXD	Fixed
GEN	Generator
HF	High Frequency
LIN	Linear
MICROCKT	Microcircuit
MTG	Mount
NTWK	Network
PL	Plate
PRERGLTR	Preregulator
PTD	Printed
RD	Round
RDR	Reader
RES	Resistor
RGLTD	Regulated

Abbreviations	Explanation
RTNR	Retainer
SCND	Semiconductor
SGL	Signal
SKT	Socket
SLFLKG	Self-Locking
SP	Special Purpose
SPRT	Support
SW	Switch
THD	Thread
WRG	Wiring

Section II. REPAIR PARTS LIST

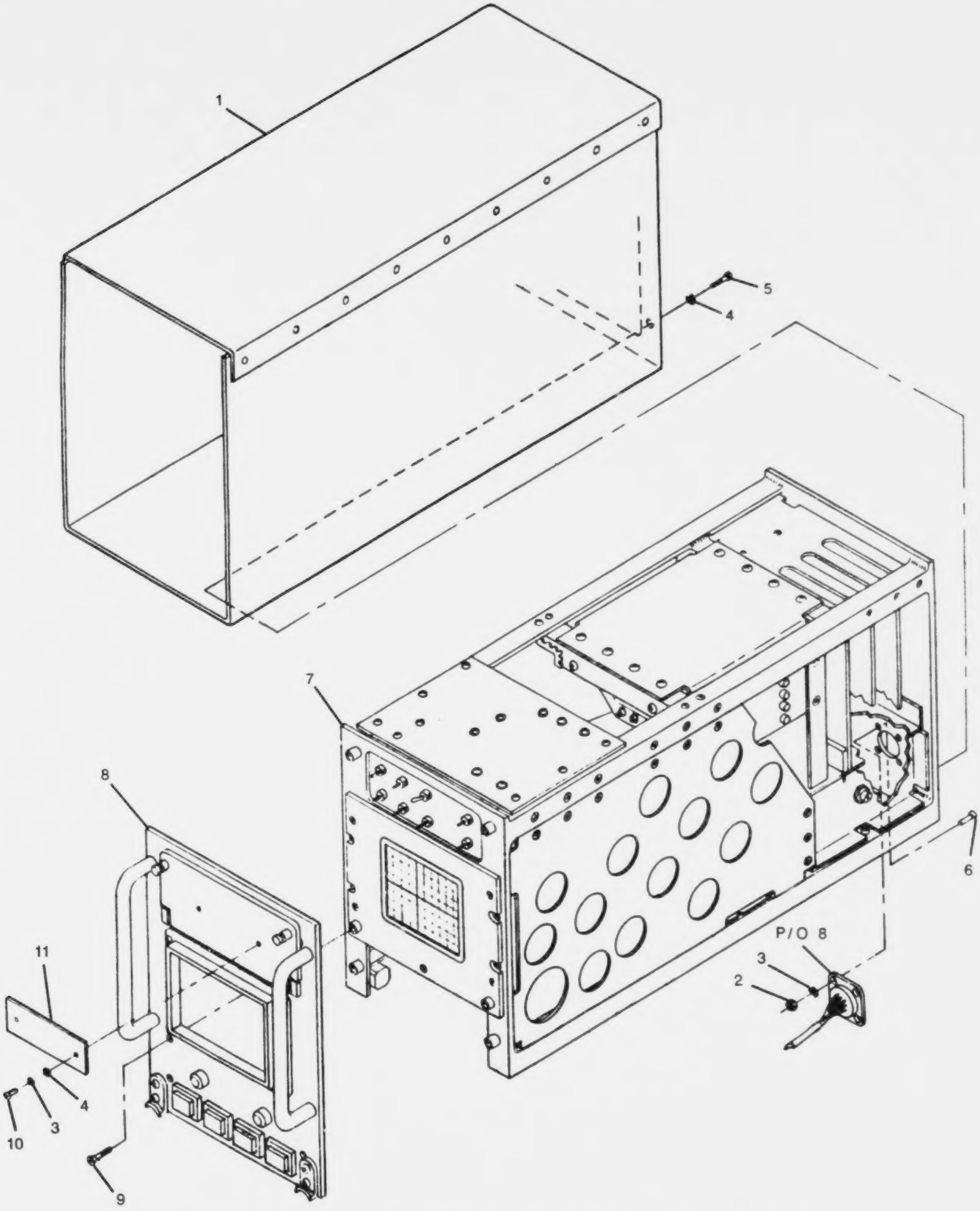


Figure C-1. Panoramic Indicator IP-1251/USQ

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 23 - PANORAMIC INDICATOR ASSY C5142140		
C-1	1	XDOZZ		C5142080	57958	CASE	EA	1
C-1	2	XDDZZ	5310-00-934-9748	MS35649-244	96906	NUT	EA	4
C-1	3	XDOZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	24
C-1	4	XDOZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	4
C-1	5	XDOZZ	5305-00-903-2194	MS24693C14	96906	SCREW	EA	18
C-1	6	XDDZZ	5305-01-148-4476	MS24693-4	96906	SCREW	EA	8
C-1	7	XDDDD		C5142078	57958	MAIN FRAME ASSEMBLY (SEE FIG C-2)	EA	1
C-1	8	XDDDD		C5142081	57958	FRONT PANEL ASSEMBLY (SEE FIG C-20)	EA	1
C-1	9	XDOZZ	5305-00-827-5270	MS24693-29	96906	SCREW	EA	6
C-1	10	XDOZZ	5305-01-049-9121	MS51957-12	96906	SCREW	EA	2
C-1	11	XDOZZ		C5142121	57958	PLATE, IDENT	EA	1

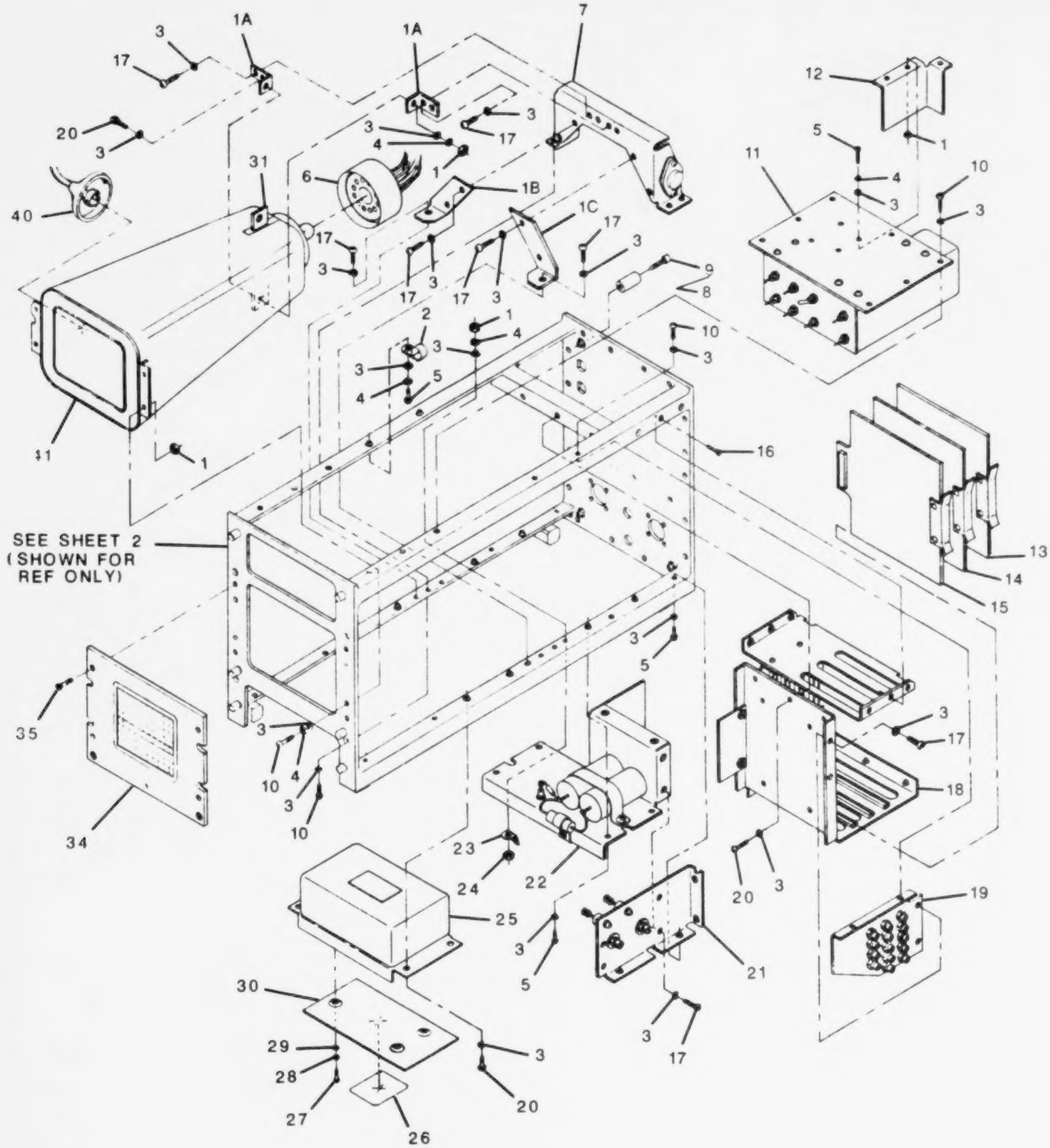


Figure C-2. Main Frame Assembly (Sheet 1 of 2)

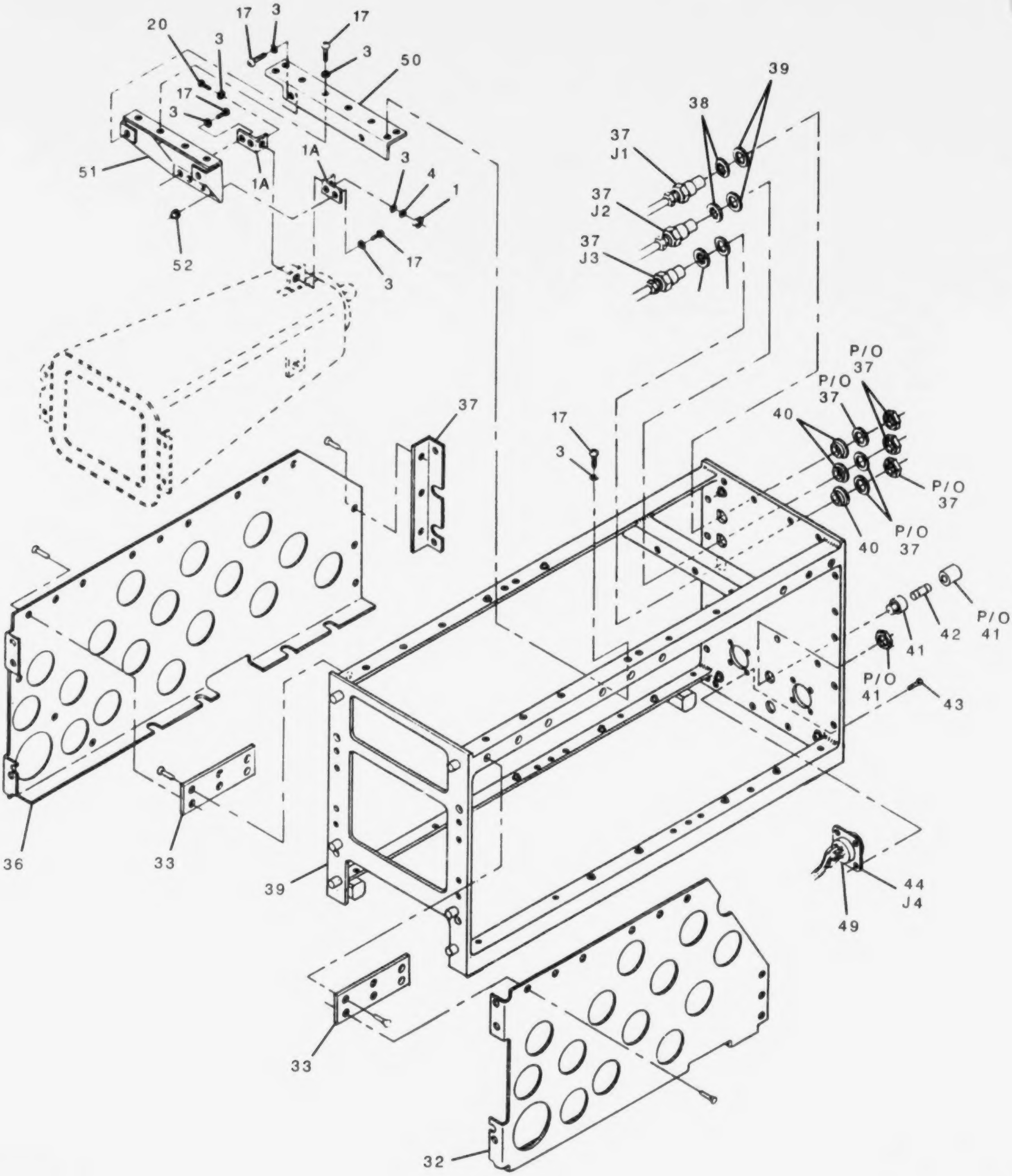


Figure C-2. Main Frame Assembly (Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 2301 - MAIN FRAME ASSY C5142078 (57958)		
C-2	1	XDDZZ	5310-00-934-9761	MS35649-264	96906	NUT	EA	18
C-2	1A			C5142195	57958	BRACKET,ANGLE	EA	4
C-2	1B			C5142196	57958	BRACKET	EA	1
C-2	1C			C5142200	57958	BRACKET	EA	1
C-2	2	XDDZZ	5340-01-090-4382	AP-2	06229	CLAMP,CABLE	EA	11
C-2	3	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER	EA	80
C-2	4	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER	EA	22
C-2	5	XDDZZ	5305-00-054-6653	MS51957-29	96906	SCREW	EA	6
C-2	6	XDDZZ		3509	24972	SOCKET,CATHODE-RAY TUBE	EA	1
C-2	7	XDDDD		C5142090	57958	SUPPORT ASSY,REAR SHLD (SEE FIG C-7)	EA	1
C-2	8	XDOZZ		C5142096	57958	BUMPER,REAR	EA	4
C-2	9	XDDZZ	5305-00-988-7603	MS16995-27	96906	SCREW	EA	4
C-2	10	XDDZZ	5305-00-054-6652	MS51957-28	96906	SCREW	EA	20
C-2	11	XDDDD		C5142125	57958	MOUNTING BRACKET ASSY (SEE FIG C-13)	EA	1
C-2	12	XDDZZ		C5142123	57958	PANEL,PROTECTIVE	EA	1
C-2	13	PADDD	5865-01-248-7501	C5142083	57938	BOARD ASSY,HORIZ AMPL (SEE FIG C-17)	EA	1
C-2	14	PADDD	5865-01-248-7497	C5142082	57958	BOARD ASSY,VERT AMPL (SEE FIG C-18)	EA	1
C-2	15	PADDD	5865-01-248-7498	C5142084	57958	BOARD ASSY,Z AXIS/ TEST/REGULATOR (SEE FIG C-19)	EA	1
C-2	16	XDDZZ	5305-01-052-3304	MS24693-25	96906	SCREW	EA	6
C-2	17	XDDZZ	5305-00-054-6651	MS51957-27	96906	SCREW	EA	26
C-2	18	XDDDD		C5142087	57958	CARD CAGE ASSY (SEE FIG C-4)	EA	1
C-2	19	XDDDD		C5142115	57958	TEST POINT PANEL ASSY (SEE FIG C-12)	EA	1
C-2	20	XDDZZ	5305-00-054-6654	MS51957-30	96906	SCREW	EA	15
C-2	21	XDDDD		C5142088	57958	REAR BRACE ASSY (SEE FIG C-5)	EA	1
C-2	22	XDDDD		C5142089	57958	BRACKET ASSY,RF INTERFERENCE FILTER MTG (SEE FIG C-6)	EA	1
C-2	23	XDDZZ	5940-00-827-2653	MS77068-2	96906	TERMINAL,LUG		3
C-2	24	XDDZZ	5310-00-934-9748	MS35649-244	96906	NUT	EA	3
C-2	25	XDDDD		C5142138	57958	BRACKET ASSY,DC-DC CONVERTER (SEE FIG C-8)	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-2	26	XDOZZ		C5142097	57958	LABEL,HIGH VOLTAGE	EA	1
C-2	27	XDOZZ	5305-00-054-5649	MS51957-15	96906	SCREW	EA	6
C-2	28	XDOZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	5
C-2	29	XDOZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	8
C-2	30	XDOZZ		C5142117	57958	PANEL,PROTECTIVE,DC-DC CONVERTER	EA	1
C-2	31			C5142194	57958	SUPPORT RING	EA	2
C-2	32			C5142190	57958	BRACE ASSY,RT SIDE	EA	1
C-2	33			C5142193	57958	SIDE SUPPORT	EA	5
C-2	34	XDOZZ		C5142116	57958	GRATICULE	EA	1
C-2	35	XDOZZ	5305-01-148-4476	MS24693-4	96906	SCREW	EA	11
C-2	36			C5142190	57958	BRACE ASSY,LEFT SIDE	EA	1
C-2	37			C5142199	57958	BRACKET	EA	1
C-2	38	XDDDD		C5142085	57958	FRAME	EA	1
C-2	39	XDOZZ	5340-00-024-6679	AP-1	06229	CLAMP,CABLE	EA	8
C-2	40	XDOZZ		CT8	01240	CONNECTOR,ANODE	EA	1
C-2	41	PADDD	5905-01-248-7474	C5142122	57958	TWIST COIL,SHIELD/CRT ASSY	EA	1
C-2	42	PADZZ	5935-01-270-0112	M39012/28-0005	81349	CONNECTOR,TNC	EA	3
C-2	43	XDDZZ	5310-00-261-7156	MS35333-78	96906	WASHER	EA	3
C-2	44	XDDZZ		5710-190-30	86928	WASHER,FLAT	EA	3
C-2	45	XDDZZ	5970-00-177-1548	330620	00779	WASHER,SHLDR,D	EA	3
C-2	46	PADZZ	5920-01-040-1723	FHN20G	75915	HOLDER,FUSE	EA	2
C-2	47	PAOZZ		31301.5	75917	FUSE	EA	2
C-2	48	PADZZ		MS27508E16F	96906	CONNECTOR,RCPT ELEC	EA	1
C-2	49	XDOZZ	5999-00-402-2545	M39029/58-364	81349	CONTACT	EA	8
C-2	50			C5142197	57958	BRACKET	EA	1
C-2	51			C5142198	57958	BRACKET	EA	1
C-2	52			MIL-N-45938/7A-4	81349	NUT	EA	2

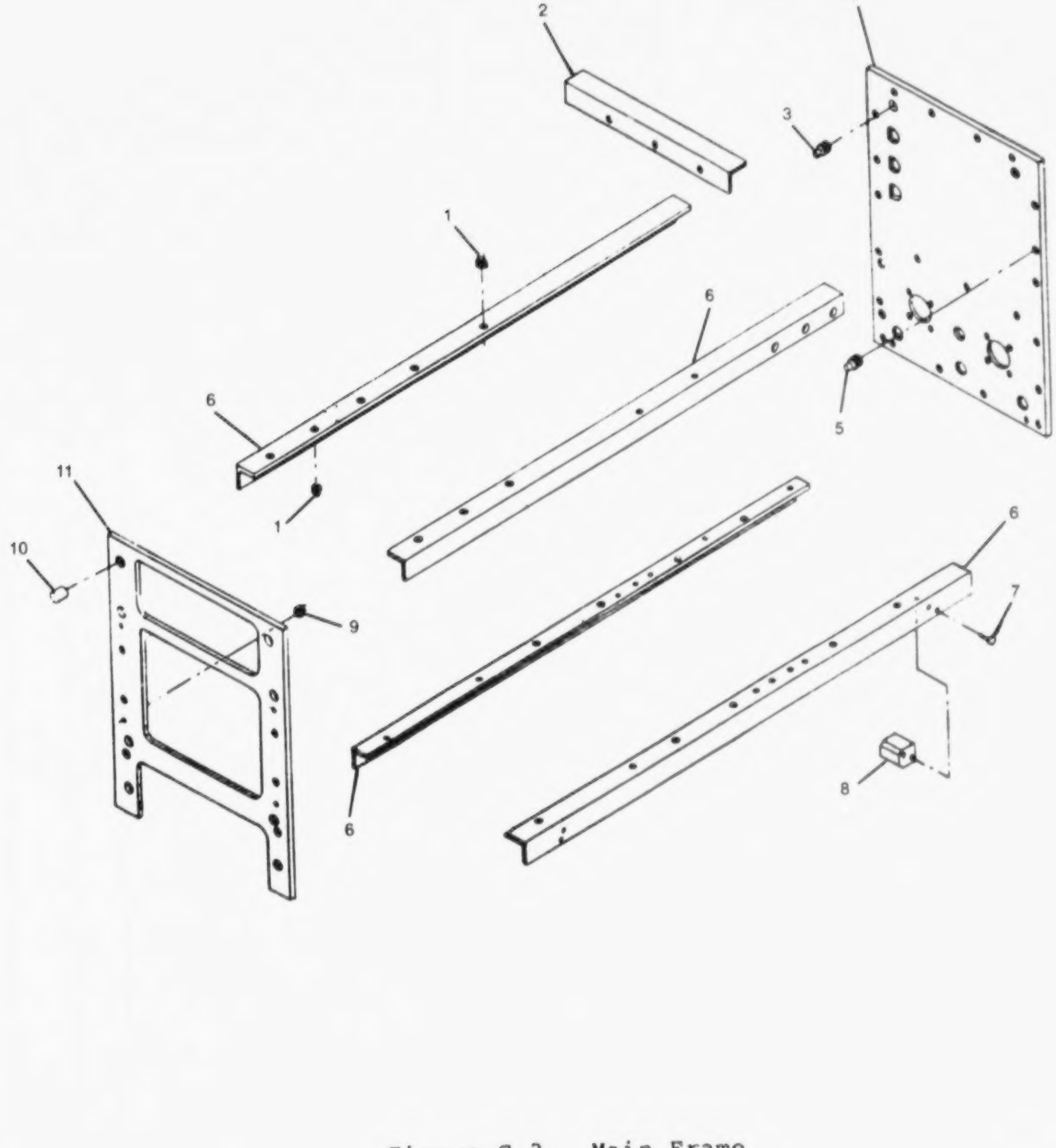


Figure C-3. Main Frame

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - MAIN FRAME ASSY C5142085		
C-3	1	XDDZZ		MIL-N-45938/7A-4	81349	NUT,SLF-LKG,CL INCH	EA	21
C-3	2	XA---		C5142085-4	57958	RAIL	EA	1
C-3	3	XDDZZ		MIL-N-45938/7A-6	81349	NUT,SLF-LKG,CL INCH	EA	4
C-3	4	XA---		C5142085-2	57958	PANEL,REAR	EA	1
C-3	5	XDDZZ		MIL-N-45938/7A-2	81349	NUT,SLF-LKG,CL INCH	EA	18
C-3	6	XA---		C5142085-3	57958	RAIL	EA	4
C-3	7	XDDZZ	5320-00-619-4098	MS20426AD3-12	96906	RIVET	EA	8
C-3	8	XDDZZ		C5142085-5	57958	FOOT	EA	4
C-3	9	XDDZZ	5310-00-071-0199	LAC-440-2	46384	NUT,SLF-LKG,CL INCH	EA	5
C-3	10	XDDZZ		SOS-8632-12	99256	STANDOFF, SLF-CLINCHING	EA	2
C-3	11	XA---		C5142085-1	57958	PANEL,SUB FRONT	EA	1

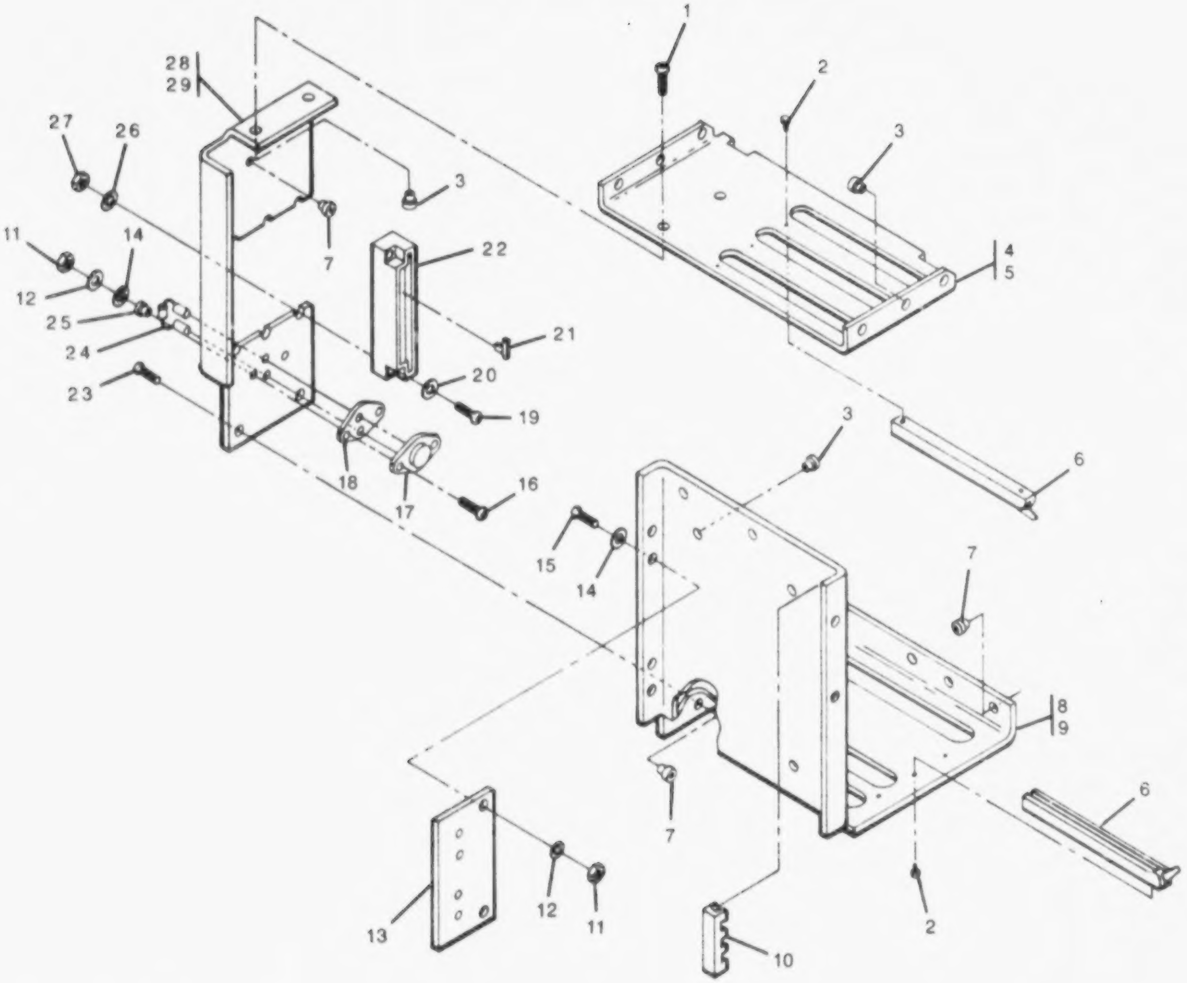


Figure C-4. Card Cage Assembly

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - CARD CAGE ASSY C5142087		
C-4	1	XDDZZ	5305-00-054-6652	MS51957-28	96906	SCREW	EA	2
C-4	2	XDDZZ		S-5994	55993	EYELET	EA	12
C-4	3	XDDZZ		MIL-N-45938/7A-2	81349	NUT,SLF-LKG,CLINCH	EA	7
C-4	4	XDDDD		C5142146	57958	BRACKET ASSY,UPPER CARD CAGE	EA	1
C-4	5	XDDZZ		C5142146-1	57958	BRACKET	EA	1
C-4	6	XDDZZ		24S-2-8-3-L	07344	GUIDE,CARD	EA	6
C-4	7	XDDZZ		MIL-N-45938/7A-4	81349	NUT,SLF-LKG,CLINCH	EA	15
C-4	8	XDDDD		C5142111	57958	CARD CAGE ASSY	EA	1
C-4	9	XDDZZ		C5142111-1	57958	CARD CAGE	EA	1
C-4	10	XDDZZ	5325-00-074-3301	MS21266-2	96906	GROMMET	EA	1
C-4	11	XDDZZ	5310-00-934-9761	MS35649-264	96906	NUT	EA	4
C-4	12	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER	EA	2
C-4	13	XDDZZ		C5142093	57958	INSULATOR,DFL PLATE LEADS	EA	1
C-4	14	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER	EA	5
C-4	15	XDDZZ	5305-00-054-6651	MS51957-27	96906	SCREW	EA	2
C-4	16	XDDZZ	5305-00-411-0683	MS51957-123	96906	SCREW	EA	1
C-4	17	PADZZ	5961-01-010-2064	JANTX2N6211	81349	TRANSISTOR	EA	1
C-4	18	XDDZZ		MIL-M-38527/84-023P	81349	INSULATOR	EA	1
C-4	19	XDDZZ	5305-00-054-5651	MS51957-17	96906	SCREW	EA	6
C-4	20	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	6
C-4	21	XDDZZ		408-240-328	31781	INSERT,POLARIZING	EA	3
C-4	22	PADZZ	5935-01-251-2386	408-023-500-212	31781	CONNECTOR	EA	3
C-4	23	XDDZZ	5305-00-054-6653	MS51957-29	96906	SCREW	EA	1
C-4	24	PADZZ	5905-00-078-7066	RCR20G101JR	81349	RESISTOR	EA	1
C-4	25	XDDZZ	5310-00-125-9929	2662	83330	WASHER	EA	2
C-4	26	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	6
C-4	27	XDDZZ	5310-00-934-9748	MS35649-244	96906	NUT	EA	6
C-4	28	XDDDD		C5142147	57958	BRACKET ASSY,CONN MTG	EA	1
C-4	29	XDDZZ		C5142147-1	57958	BRACKET,CONN MTG	EA	1

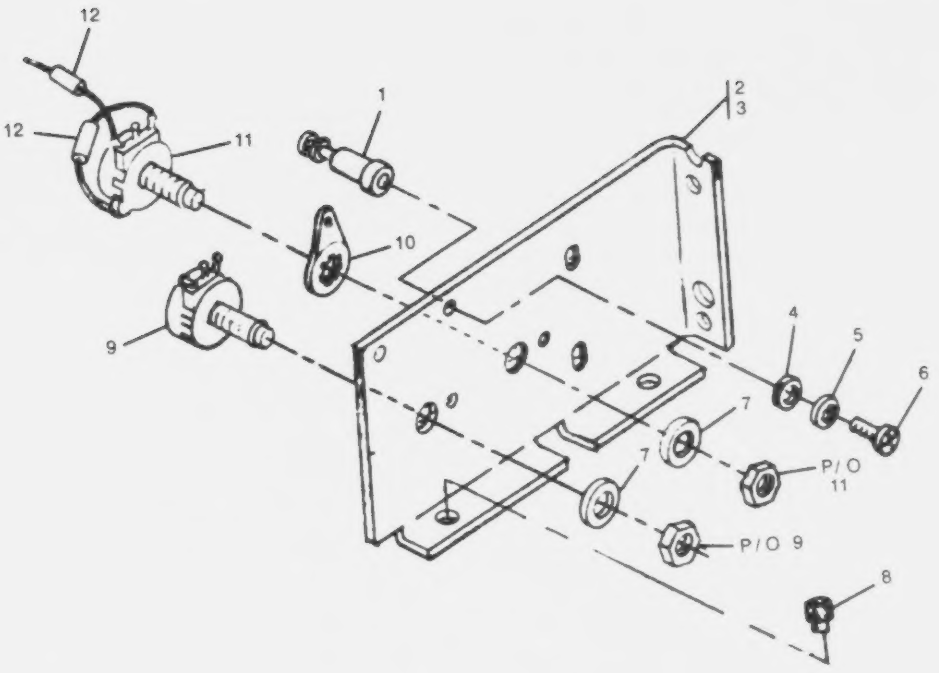


Figure C-5. Rear Brace Assembly

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - REAR BRACE ASSY C5142088		
C-5	1	XDDZZ		572-4826-01-0156	71279	TERMINAL	EA	1
C-5	2	XDDDD		C5142118	57958	BRACE,REAR SUPPORT, RIGHT SIDE	EA	1
C-5	3	XDDZZ		C5142118-1	57958	BRACE	EA	1
C-5	4	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	1
C-5	5	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	1
C-5	6	XDDZZ	5305-00-054-5647	MS51957-13	96906	SCREW	EA	1
C-5	7	XDDZZ	5310-00-802-4701	MS15795-813	96906	WASHER	EA	2
C-5	8	XDDZZ		MIL-N-45938/7A-4	81349	NUT,SLF-LKG,CLINCH	EA	1
C-5	9	PADZZ	5905-00-503-6218	RV4LAYSA251A	81349	RESISTOR	EA	1
C-5	10	XDDZZ	5940-00-683-4651	1493	83330	SOLDER,LUG,INT TOOTH	EA	1
C-5	11	PADZZ	5905-00-665-4992	RV4LAYSA104A	81349	RESISTOR	EA	1
C-5	12	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	2

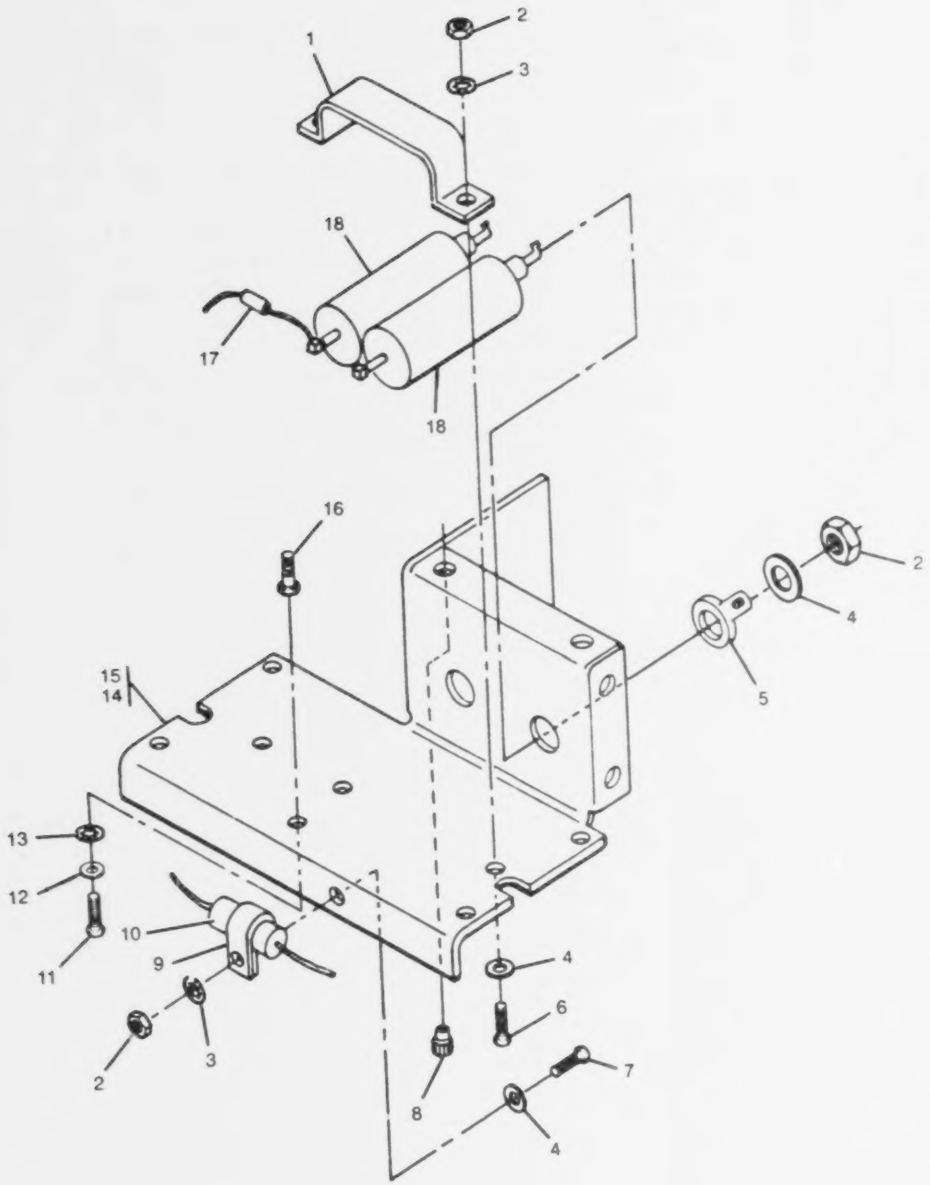


Figure C-6. RFI Filter Mounting Bracket Assy

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - RFI FILTER MOUNTING BRACKET ASSY C5142089		
C-6	1	XDDZZ		C5142109-1	57958	CLAMP, FILTER	EA	1
C-6	2	XDDZZ	5310-00-934-9761	MS35649-264	96906	NUT	EA	3
C-6	3	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER	EA	3
C-6	4	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER	EA	3
C-6	5	XDDZZ	5940-00-328-6397	5411-32	86928	SOLDER LUG	EA	1
C-6	6	XDDZZ	5305-00-054-6651	MS51957-27	96906	SCREW	EA	2
C-6	7	XDDZZ	5305-00-054-6653	MS51957-29	96906	SCREW	EA	1
C-6	8	XDDZZ		MIL-N-45938/7A-4	81349	NUT, SLF-LKG, CLINCH	EA	4
C-6	9	XDDZZ	5340-01-054-8824	8944	83330	CLAMP, CAPACITOR	EA	1
C-6	10	PADZZ	5910-00-007-7183	M39018/01-0636	81349	CAPACITOR	EA	1
C-6	11	XDDZZ	5305-00-054-5647	MS51957-13	96906	SCREW	EA	1
C-6	12	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	1
C-6	13	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	1
C-6	14	XDDZZ		C5142108-1	57958	BRACKET, FILTER MTG	EA	1
C-6	15	XDDDD		C5142108	57958	BRACKET ASSY, RF INTERFERENCE	EA	1
C-6	16	XDDZZ		572-4826-01-0156	71279	TERMINAL	EA	1
C-6	17	PADZZ	5905-01-239-4722	RWR80S1R500FP	81349	RESISTOR	EA	1
C-6	18	PADZZ	5915-01-250-5983	RNR646	19130	FILTER FEED-THRU, RF INTERFERENCE	EA	2

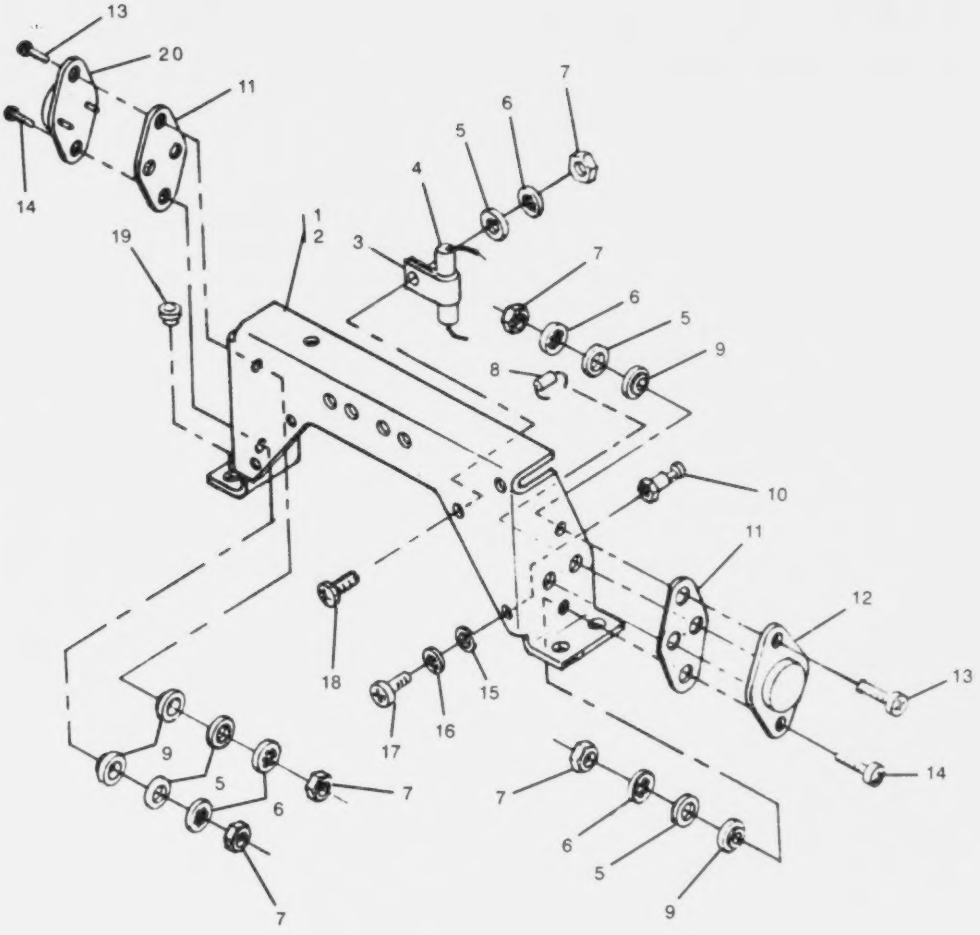


Figure C-7. Rear Shield Support Assembly

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - REAR SHIELD SUPPORT ASSY C5142090		
C-7	1	XDDDD		C5142107	57958	BRACKET ASSY,REAR SHLD SUPPORT	EA	1
C-7	2	XDDZZ		C5142107-1	57958	BRACKET,REAR SHLD SUPPORT	EA	1
C-7	3	XDDZZ	5340-01-054-8824	8944	83330	CLAMP,CAPACITOR	EA	1
C-7	4	PADZZ	5910-01-040-7176	M39018/01-0736	81349	CAPACITOR	EA	1
C-7	5	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER	EA	6
C-7	6	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER	EA	5
C-7	7	XDDZZ	5310-00-934-9761	MS35649-264	96906	NUT	EA	5
C-7	8	PADZZ	5905-00-078-7066	RCR20G101JR	81349	RESISTOR	EA	1
C-7	9	XDDZZ	5310-00-125-9929	2662	83330	WASHER	EA	4
C-7	10	XDDZZ		572-4826-01-0156	71279	TERMINAL	EA	2
C-7	11	XDDZZ		MIL-M-38527/84-023P	81349	INSULATOR	EA	2
C-7	12	PADZZ	5961-00-627-0275	JANTX2N3792	81349	TRANSISTOR	EA	1
C-7	13	XDDZZ	5305-00-054-6654	MS51957-30	96906	SCREW	EA	2
C-7	14	XDDZZ	5305-00-054-6653	MS51957-29	96906	SCREW	EA	2
C-7	15	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	2
C-7	16	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	2
C-7	17	XDDZZ	5305-00-054-5647	MS51957-13	96906	SCREW	EA	2
C-7	18	XDDZZ	5305-00-054-6652	MS51957-28	96906	SCREW	EA	1
C-7	19	XDDZZ		MIL-N-45938/7A-4	81349	NUT,SLF-LKG,CLINCH	EA	12
C-7	20	PADZZ	5961-01-040-6424	JANTX1N2802B	81349	SEMICOND DEVICE	EA	1

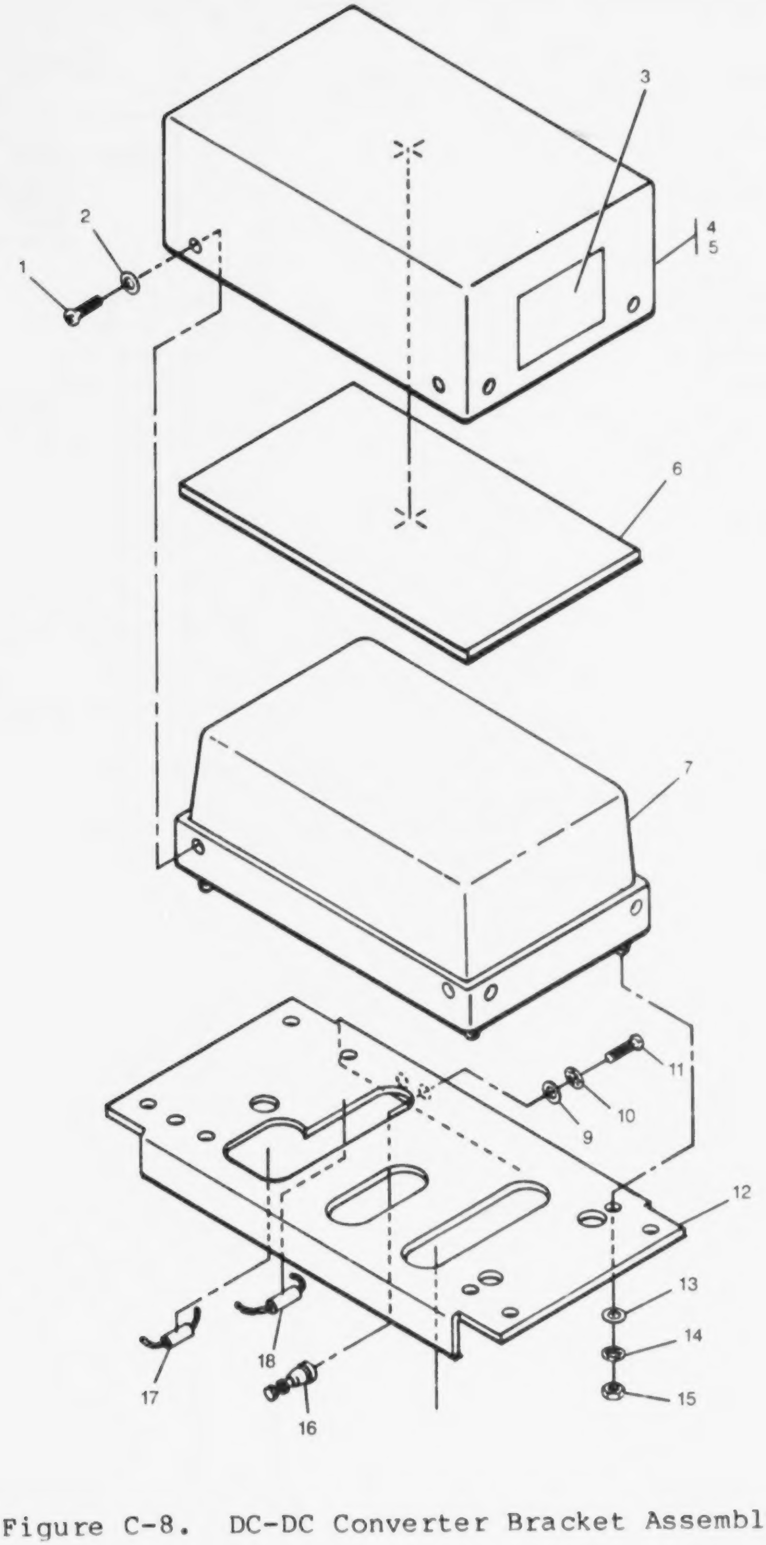


Figure C-8. DC-DC Converter Bracket Assembly

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - DC-DC CONVERTER BRACKET ASSY C5142138		
C-8	1	XDDZZ	5305-00-054-5647	MS51957-13	96906	SCREW		8
C-8	2	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER		8
C-8	3	XDDZZ		C5142181	57958	NAMEPLATE		1
C-8	4	XDDDD		C5142166	57958	COVER ASSY, DC-DC CONVERTER		1
C-8	5	XDDZZ		C5142148-1	57958	COVER,DC-DC CONVERTER		1
C-8	6	XDDZZ		C5142149-1	57958	INSULATOR,PWB		1
C-8	7	XDDDD		C5142091	57958	MODULE ASSY, DC-DC CONVERTER		1
C-8	8	XDDDD		C5142145	57958	PLATE ASSY,BASE (SEE FIG C-9)		2
C-8	9	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER		2
C-8	10	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER		2
C-8	11	XDDZZ	5305-00-054-5647	MS51957-13	96906	SCREW		2
C-8	12	XDDZZ		C5142139-1	57958	BRACKET,MTG,DC-DC CONN		1
C-8	13	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER		4
C-8	14	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER		4
C-8	15	XDDZZ	5310-00-934-9761	MS35649-264	96906	NUT		4
C-8	16	XDDZZ		572-4826-01-0156	71279	TERMINAL		2
C-8	17	PADZZ	5905-00-078-7066	RCR20G101JR	81349	RESISTOR		1
C-8	18	PADZZ	5905-00-689-3021	RCR20G102JR	81349	RESISTOR		2

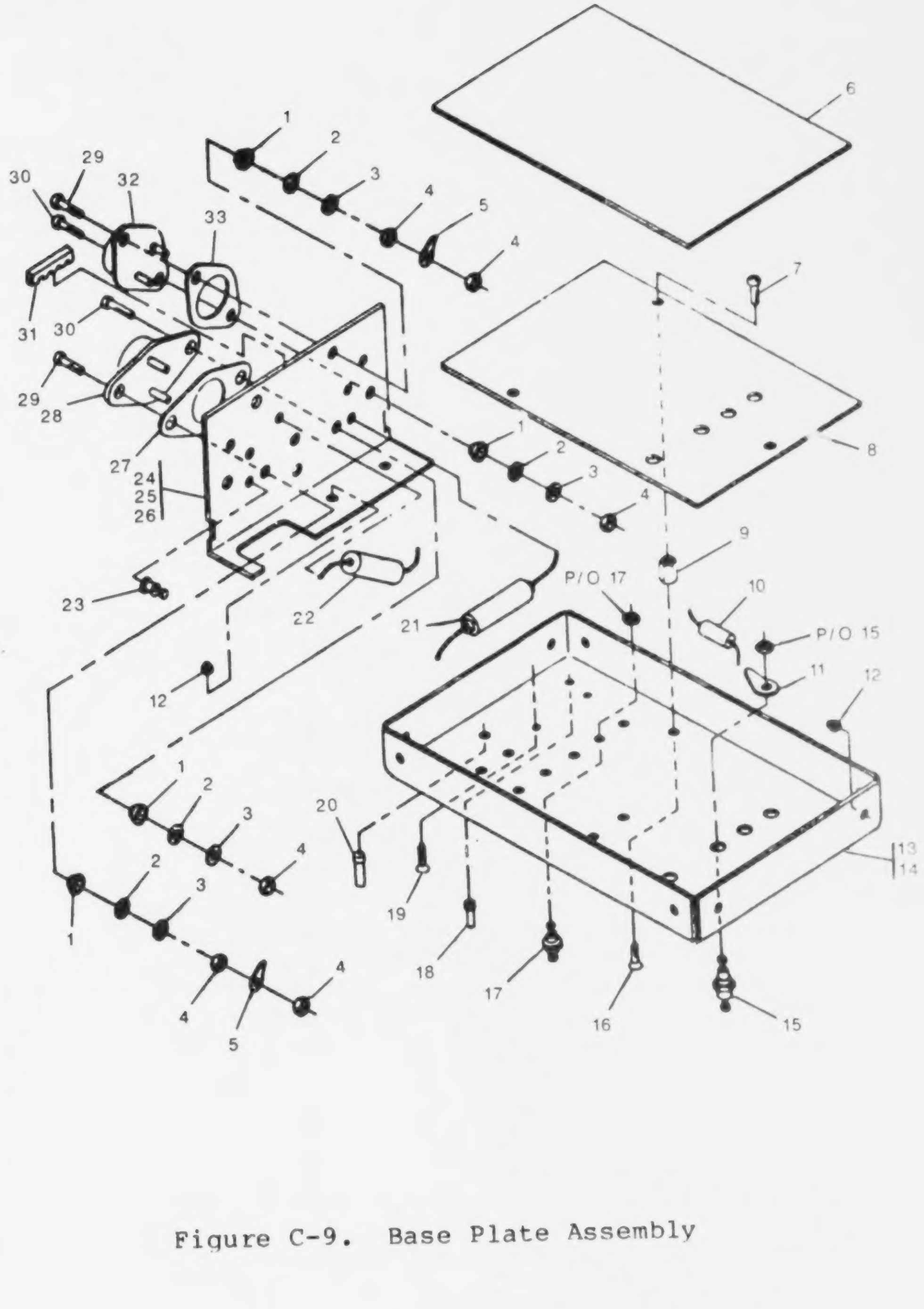


Figure C-9. Base Plate Assembly

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - BASE PLATE ASSY C5142145		
C-9	1	XDDZZ	5310-00-125-9929	2662	83330	WASHER,SHLDR		6
C-9	2	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER		6
C-9	3	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER		6
C-9	4	XDDZZ	5310-00-934-9761	MS35649-264	96906	NUT		9
C-9	5	XDDZZ	5940-00-821-6217	1416-6	83330	SOLDER LUG		3
C-9	6	PADDD	5865-01-248-7496	C5142141	57958	BOARD ASSY,HIGH VOLTAGE (SEE FIG C-10)		1
C-9	7	XDDZZ	5905-00-889-0071	2520	83330	SCREW,NYLON		3
C-9	8	PADDD	5865-01-248-7499	C5142144	57958	BOARD ASSY,LOW VOLTAGE (SEE FIG C-11)		1
C-9	9	XDDZZ		4050	83330	STANDOFF		3
C-9	10	PADZZ	5910-01-254-0361	M39003/01-2523	81349	CAPACITOR		3
C-9	11	XDDZZ	5940-00-901-7285	1416-8	83330	SOLDER LUG		2
C-9	12	XDDZZ		MIL-N-45938/7A-2	81349	NUT,SELF-CLINCHING		8
C-9	13	XDDZZ		C5142151-1	57958	ENCLOSURE		1
C-9	14	XDDDD		C5142151	57958	BASE ASSY, DC-DC CONVERTER		2
C-9	15	XDDZZ		1433-7-11	88245	TERMINAL		4
C-9	16	XDDZZ		020440B018	13764	SCREW,NYLON		3
C-9	17	XDDZZ	5940-01-144-0438	4471C-7	88245	TERMINAL		9
C-9	18	XDDZZ		FHS-632-6	99256	STUD,SELF-CLINCHING		4
C-9	19	XDDZZ		MS24693-3	96906	SCREW		2
C-9	20	XDDZZ		BSOS-440-14	99256	STANDOFF SELF-CLINCHING		3
C-9	21	PADZZ	5950-00-116-4980	5250	76493	CHOKE		1
C-9	22	PADZZ		600D825F100KD4	56289	CAPACITOR		2
C-9	23	XDDZZ		013-2401-000-599	98291	TERMINAL		3
C-9	24	XDDZZ		C5142153-1	57958	BRACKET,HEATSINK		1
C-9	25	XDDDD		C5142152	57958	HEATSINK ASSY		1
C-9	26	XDDDD		C5142153	57958	BRACKET ASSY,HEATSINK		1
C-9	27	XDDZZ	5970-01-203-5932	09 SPS01-023	55285	PAD,HEATSINK		1
C-9	28	PADZZ	5961-01-156-7901	MJ10009	04713	TRANSISTOR		1
C-9	29	XDDZZ	5305-00-411-0683	MS51957-123	96906	SCREW		3
C-9	30	XDDZZ	5305-00-054-6655	MS51957-31	96906	SCREW		3
C-9	31	XDDZZ	5325-00-074-3301	MS21266-2	96906	GROMMET		1
C-9	32	PADZZ	5962-01-048-6860	LM117K/883B	27014	MICROCIRCUIT,DIGITAL		2
C-9	33	XDDZZ		MIL-M-38527/8A-0	81349	INSULATOR		2

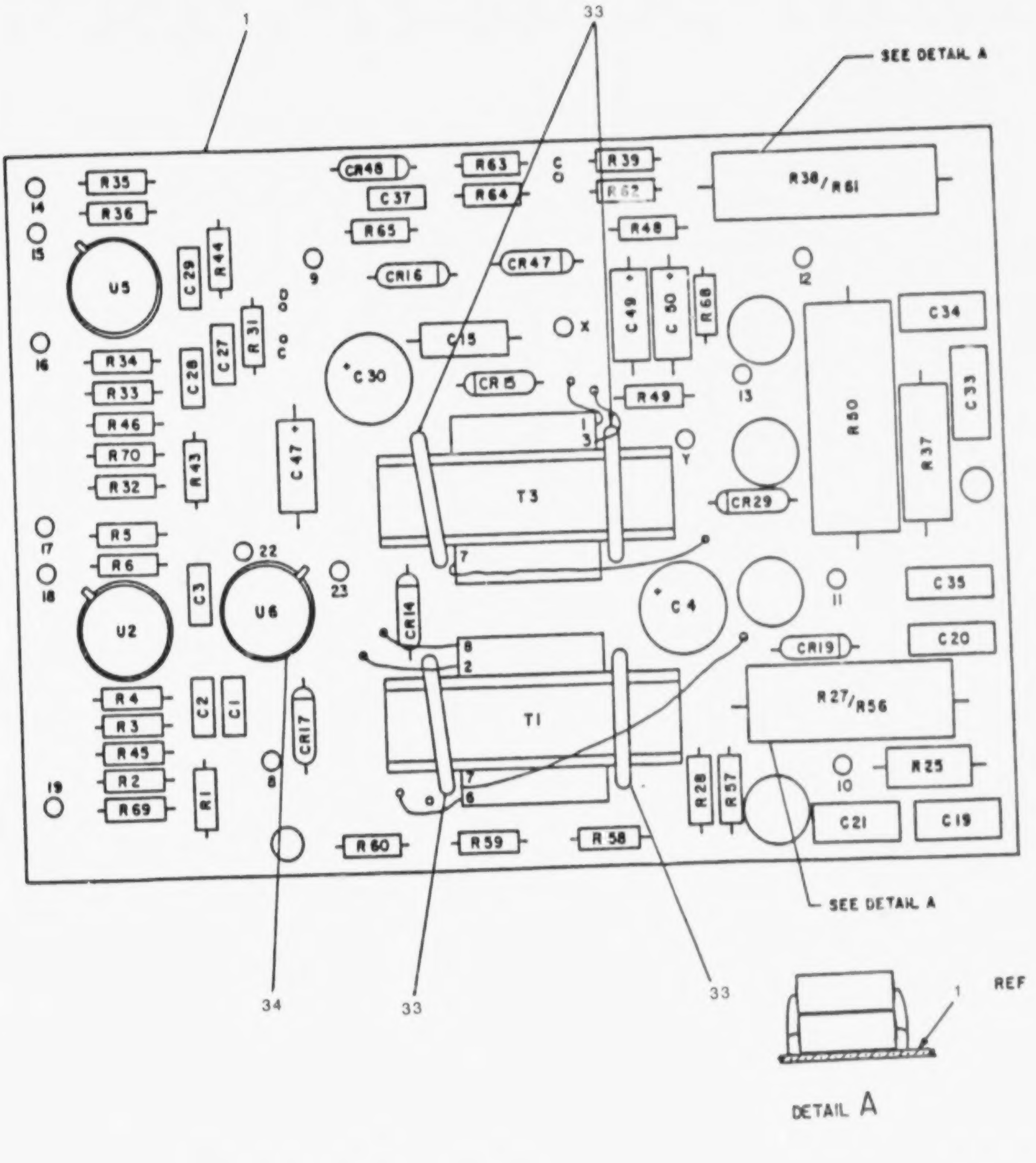


Figure C-10. High Voltage Board Assembly (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR14	5	R37	24								
CR15	5	R38	22								
CR16	5	R39	25								
CR17	5	R43	26								
CR19	5	R44	26								
CR29	5	R45	18								
CR47	7	R46	18								
CR48	7	R48	27								
C1	9	R49	27								
C2	10	R50	22								
C3	10	R56	22								
C4	11	R57	23								
C15	12	R58	28								
C16	NOT SHOWN	R59	28								
		R60	29								
C19	13	R61	22								
C20	13	R62	25								
C21	13	R63	30								
C27	9	R64	30								
C28	10	R65	29								
C29	10	R68	31								
C30	11	R69	32								
C33	13	R70	32								
C34	13	T1	8								
C35	13	T3	8								
C37	10	U2	3								
C47	14	U5	3								
C49	15	U6	4								
C50	15										
R1	16										
R2	17										
R3	18										
R4	18										
R5	19										
R6	20										
R25	21										
R27	22										
R28	23										
R31	16										
R32	17										
R33	18										
R34	18										
R35	19										
R36	20										

Figure C-10. High Voltage Board Assembly (Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - HIGH VOLTAGE BOARD ASSY C5142141		
C-10		XDDDD		C5142134	57958	BOARD ASSY, FABRICATION	EA	1
C-10	1	XA		C5142134-1	57958	PRINTED WIRING BD, HIGH VOLTAGE	EA	1
C-10	2	XDDZZ		10-301-2-01	18310	TERMINAL	EA	19
C-10	3	PADZZ	5962-01-075-8589	CA3140S3	02734	MICROCIRCUIT, LINEAR	EA	2
C-10	4	PADZZ		UA78M12HMQB	70263	MICROCIRCUIT, DIGITAL	EA	1
C-10	5	PADZZ	5961-00-476-7855	JANTX 1N5619	81349	SEMICONDUCTOR DEVICE, DIODE	EA	4
C-10	6	PADZZ		HV5FS	59635	DIODE, HIGH VOLTAGE	EA	2
C-10	7	PADZZ	5961-00-425-9815	JANTX 1N5617	81349	SEMICONDUCTOR DEVICE, DIODE	EA	2
C-10	8	PADZZ		Y76-105	50638	TRANSFORMER, FLYBACK	EA	2
C-10	9	PADZZ	5910-01-016-1124	M39014/02-1298	81349	CAPACITOR	EA	2
C-10	10	PADZZ	5910-01-219-4856	M39014/02-1310	81349	CAPACITOR	EA	5
C-10	11	PADZZ		M39018/08-0114M	81349	CAPACITOR	EA	2
C-10	12	PADZZ	5910-00-248-9683	10PS-D10	56289	CAPACITOR	EA	2
C-10	13	PADZZ	5910-00-481-9037	30GA-D22	56289	CAPACITOR	EA	6
C-10	14	PADZZ	5910-00-068-4302	M39003/01-2596	81349	CAPACITOR	EA	1
C-10	15	PADZZ	5910-00-491-6522	M39003/01-2772	81349	CAPACITOR	EA	2
C-10	16	PADZZ	5905-01-137-0111	RLR07C7500GS	81349	RESISTOR	EA	2
C-10	17	PADZZ	5905-01-085-1164	RLR07C1001GS	81349	RESISTOR	EA	2
C-10	18	PADZZ	5905-00-118-4559	RCR07G333JS	81349	RESISTOR	EA	6
C-10	19	PADZZ	5905-00-104-8369	RCR07G362JS	81349	RESISTOR	EA	2
C-10	20	PADZZ	5905-00-136-3891	RCR07G621JS	81349	RESISTOR	EA	2
C-10	21	PADZZ	5905-00-104-8336	RCR20G104JS	81349	RESISTOR	EA	1
C-10	22	PADZZ		ROX-1E40MOHM	14298	RESISTOR, HV	EA	5
C-10	23	PADZZ	5905-01-189-6326	RLR07C1243FS	81349	RESISTOR	EA	2
C-10	24	PADZZ	5905-00-420-3297	RCR32G203FS	81349	RESISTOR	EA	1
C-10	25	PADZZ	5905-01-196-1968	RLR07C3743FS	81349	RESISTOR	EA	2
C-10	26	PADZZ	5905-00-110-7622	RCR07G682JS	81349	RESISTOR	EA	2
C-10	27	PADZZ		ZEROHM	11507	RESISTOR	EA	2
C-10	28	PADZZ	5905-01-055-6915	RLR07C1213FS	81349	RESISTOR	EA	2
C-10	29	PADZZ	5905-00-136-7103	RCR07G204JS	81349	RESISTOR	EA	2
C-10	30	PADZZ	5905-01-150-4491	RLR07C1743FS	81349	RESISTOR	EA	2
C-10	31	PADZZ	5905-00-110-7620	RCR07G102JS	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-10	32	XC		C5142188 (selected at test from the following:)	57958	RESISTOR KIT	EA	1
C-10	32	PADZZ	5905-00-005-3369	RCR20G392JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5430	RCR20G433JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-078-7087	RCR20G432JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-0595	RCR20G472JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-0597	RCR20G513JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-111-4744	RCR20G512JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5441	RCR20G563JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-1116	RCR20G562JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-01-051-5461	RCR20G623JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-229-8890	RCR20G622JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-106-9345	RCR20G683JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-1165	RCR20G682JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-113-4854	RCR20G753JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-116-8568	RCR20G752JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5489	RCR20G823JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-0600	RCR20G822JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-01-035-4590	RCR20G913JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-116-8570	RCR20G912JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-078-7067	RCR20G103JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-116-8557	RCR20G114JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5359	RCR20G113JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-104-8335	RCR20G124JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-689-3019	RCR20G123JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-01-035-4582	RCR20G134JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-111-4841	RCR20G133JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-608-7454	RCR20G154JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-106-1273	RCR20G153JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5378	RCR20G164JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-111-4746	RCR20G163JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-455-2298	RCR20G184JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-01-053-7629	RCR20G183JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-116-8560	RCR20G204JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-1187	RCR20G203JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5393	RCR20G224JR	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-106-1282	RCR20G223JR	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-10	32	PADZZ	5905-00-114-5401	RCR20G244JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-01-035-4587	RCR20G243JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5416	RCR20G274JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-106-9351	RCR20G273JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-104-8331	RCR20G304JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-935-8542	RCR20G303JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-104-8346	RCR20G334JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-104-8330	RCR20G333JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-141-0725	RCR20G364JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-104-8340	RCR20G363JR,—	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-114-5428	RCR20G394JR,	81349	RESISTOR	EA	1
C-10	32	PADZZ	5905-00-005-7174	RCR20G393JR	81349	RESISTOR	EA	1
C-10	33	XDDZZ	5975-00-937-6691	2829-115-4	98159	STRAP,TIE-DOWN	EA	4
C-10	34	XDDZZ		MIL-M-38527C/022	81349	MOUNTING PAD,ELEC	EA	1

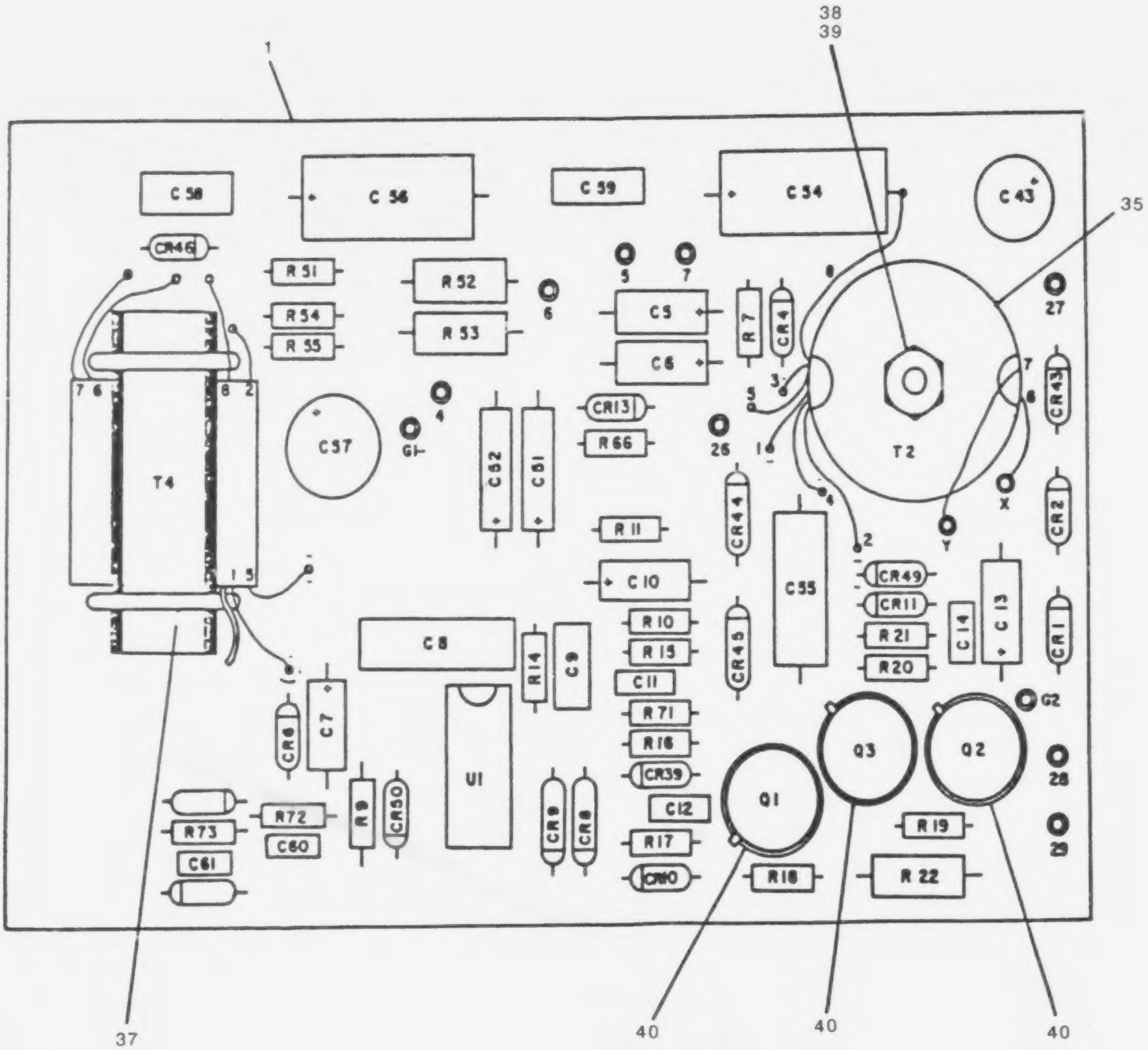


Figure C-11. Low Voltage Board Assembly (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	6	C59	21								
CR2	6	C60	18								
CR4	6	C61	16								
CR6	6	Q1	4								
CR8	7	Q2	5								
CR9	7	Q3	4								
CR10	8	R7	22								
CR11	7	R9	23								
CR13	6	R10	24								
CR39	7	R11	25								
CR43	6	R14	26								
CR44	9	R15	27								
CR45	9	R16	28								
CR46	10	R17	28								
CR49	6	R18	28								
CR50	11	R19	29								
C5	12	R20	30								
C6	12	R21	31								
C7	14	R22	32								
C8	13	R51	27								
C9	13	R52	33								
C10	15	R53	33								
C11	16	R55	34								
C12	17	R66	22								
C13	12	R71	24								
C14	17	R72	28								
C51	12	R73	41								
C52	12	T2	35								
C54	19	T4	36								
C55	20	U1	3								
C56	19										
C58	21										

Figure C-11. Low Voltage Board Assembly (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - LOW VOLTAGE BOARD ASSY C5142144		
C-11		XDDDD		C5142143	57958	BOARD ASSY	EA	1
C-11	1	XA---		C5142143-1	57958	PRINTED WIRING BOARD, LOW VOLTAGE	EA	1
C-11	2	XDDZZ		10-301-02-05	18310	TERMINAL	EA	10
C-11	3	PADZZ	5962-01-119-1379	7704501EX	14933	MICROCIRCUIT,DIGITAL	EA	1
C-11	4	PADZZ	5916-00-022-4386	JANTX2N2219A	81349	TRANSISTOR	EA	2
C-11	5	PADZZ	5961-00-431-3245	JANTX2N3421	81349	TRANSISTOR	EA	1
C-11	6	PADZZ	5961-00-425-9815	JANTX1N5617	81349	SEMICONDUCTOR DEVICE,DIODE	EA	7
C-11	7	PADZZ	5961-01-043-9178	JANTX1N4454-1	81349	SEMICONDUCTOR DEVICE,DIODE	EA	4
C-11	8	PADZZ		JANTX1N4625A	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-11	9	PADZZ	5961-00-476-7855	JANTX1N5619	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-11	10	PADZZ	5961-01-250-6844	HV5FS	59635	DIODE,HV	EA	1
C-11	11	PADZZ	5961-01-102-5719	JANTX1N751A-1	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-11	12	PADZZ	5910-00-833-6764	M39003/01-2529	81349	CAPACITOR	EA	5
C-11	13	PADZZ	5910-01-044-8566	CMR06F102JPDP	81349	CAPACITOR	EA	2
C-11	14	PADZZ	5910-00-007-2002	M39003/01-2523	81349	CAPACITOR	EA	1
C-11	15	PADZZ	5910-00-068-4302	M39003/01-2596	81349	CAPACITOR	EA	1
C-11	16	PADZZ	5910-01-219-4856	M39014/02-1310	81349	CAPACITOR	EA	2
C-11	17	PADZZ	5910-01-016-1124	M39014/02-1298	81349	CAPACITOR	EA	2
C-11	18	PADZZ	5910-01-015-9238	M39014/01-1299	81349	CAPACITOR	EA	1
C-11	19	PADZZ	5910-01-250-8365	500D225M350DC2	56289	CAPACITOR	EA	2
C-11	20	PADZZ	5910-01-090-3030	715P22358LD3	56289	CAPACITOR	EA	1
C-11	21	PADZZ	5910-01-044-8558	CMR05FZ71JPDR	81349	CAPACITOR	EA	2
C-11	22	PADZZ	5905-00-455-4403	RCR07G2R7JS	81349	RESISTOR	EA	2
C-11	23	PADZZ	5905-00-136-8405	RCR07G131JS	81349	RESISTOR	EA	1
C-11	24	PADZZ	5905-00-110-7620	RCR07G102JS	81349	RESISTOR	EA	2
C-11	25	PADZZ	5905-01-146-4349	RLR07C8202GS	81349	RESISTOR	EA	1
C-11	26	PADZZ	5905-01-139-5314	RLR07C1002GS	81349	RESISTOR	EA	1
C-11	27	PADZZ	5905-00-135-3972	RCR07G200JS	81349	RESISTOR	EA	2
C-11	28	PADZZ	5905-00-106-3666	RCR07G103JS	81349	RESISTOR	EA	4
C-11	29	PADZZ	5905-00-119-8811	RCR07G151JS	81349	RESISTOR	EA	1
C-11	30	PADZZ	5905-01-160-0032	RLR07C2401GS	81349	RESISTOR	EA	1
C-11	31	PADZZ	5905-01-150-4517	RLR07C6200GS	81349	RESISTOR	EA	1
C-11	32	PADZZ	5905-00-141-1144	RCR20G910JR	81349	RESISTOR	EA	1
C-11	33	PADZZ	5905-00-141-1071	RCR20G474JS	81349	RESISTOR	EA	2
C-11	34	PADZZ	5905-00-116-8556	RCR07G223JS	81349	RESISTOR	EA	2

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-11	35	PADZZ	5995-01-248-7407	C5142180	57958	TRANSFORMER	EA	1
C-11	36	PADZZ	5950-01-250-3250	Y76-105	57958	TRANSFORMER	EA	1
C-11	37	XDDZZ	5975-00-937-6691	2829-115-4	98159	STRAP,TIE-DOWN	EA	2
C-11	38	XDDZZ	5305-01-090-9070	2527	83330	SCREW,NYLON	EA	1
C-11	39	XDDZZ	5310-01-004-4834	2555	83330	NUT,NYLON	EA	1
C-11	40	XDDZZ		MIL-N-38527C/022	81349	PAD,MTG	EA	3
C-11	41	PADZZ	5905-00-110-0388	RCR07G104JS	81349	RESISTOR	EA	1

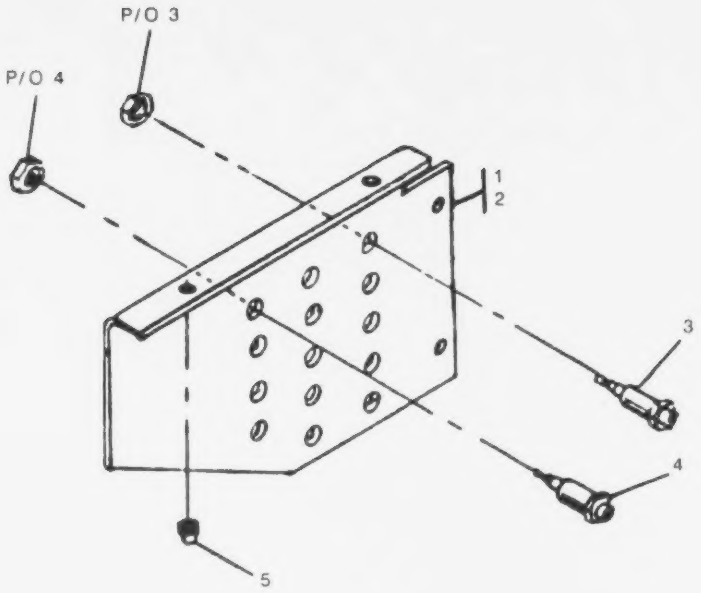
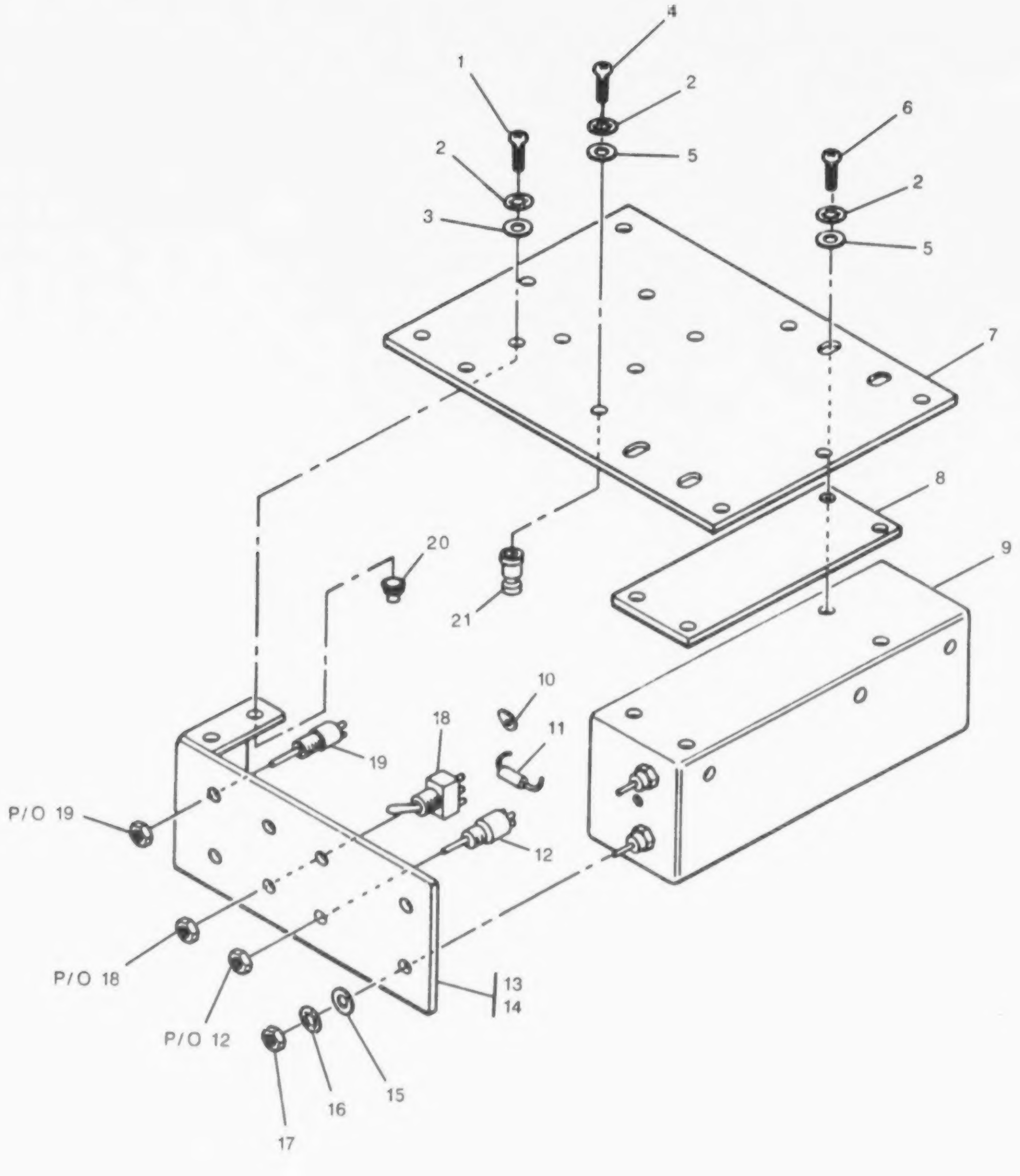


Figure C-12. Test Point Panel Assembly

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - TEST POINT PANEL ASSY C5142115		
C-12	1	XDDDD		C5142137	57958	PANEL ASSY,TEST POINT	EA	1
C-12	2	XDDZZ		C5142137-1	57958	PANEL,TEST POINT	EA	1
C-12	3	XDDZZ	5935-00-578-3489	MS1608-2A	96906	JACK	EA	13
C-12	4	XDDZZ	5935-00-577-2336	MS16108-3A	96906	JACK	EA	1
C-12	5	XDDZZ		MIL-N-45938/7A-4		NUT,SLF-LKG,CL	EA	4



C-13. Mounting Bracket Assembly

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - MOUNTING BRACKET ASSY C5142125		
C-13	1	XDDZZ	5305-00-054-6650	MS51957-26	96906	SCREW	EA	2
C-13	2	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	5
C-13	3	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER	EA	2
C-13	4	XDDZZ	5305-00-054-5647	MS51957-13	96906	SCREW	EA	1
C-13	5	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	5
C-13	6	XDDZZ	5305-00-054-6651	MS51957-27	96906	SCREW	EA	4
C-13	7	XDDZZ		C5142120-1	57958	PLATE,MTG,CRT ASSY	EA	1
C-13	8	XDDZZ		C5142094-1	57958	SPACER,CONTROL MODULE	EA	1
C-13	9	XDDDD		C5142092	57958	CONTROL MODULE ASSY,CRT (SEE FIG C-15)	EA	1
C-13	10	XDDZZ	5940-00-578-9896	1410-14	83330	SOLDER LUG	EA	1
C-13	11	PADZZ	5305-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	2
C-13	12	PADZZ	5905-00-577-1760	RV6NAYSD104A	81349	RESISTOR	EA	1
C-13	13	XDDDD		C5142112	57958	BRACKET,MTG VARIABLE RESISTOR	EA	1
C-13	14	XDDZZ		C5142112-1	57958	BRACKET	EA	1
C-13	15	XDDZZ		5710-169-30	86928	WASHER	EA	2
C-13	16	XDDZZ	5310-00-543-2740	MS35333-74	96906	WASHER	EA	2
C-13	17	XDDZZ	5310-00-250-9477	MS35649-2254	96906	NUT	EA	2
C-13	18	PADZZ	5930-00-009-4602	MS27716-26	96906	SWITCH	EA	1
C-13	19	PADZZ	5905-00-577-1761	RV6NAYSD102A	81349	RESISTOR	EA	4
C-13	20	XDDZZ		MIL-N-45938/7A-4	81349	NUT,SLF-LKG,CLINCH	EA	2
C-13	21	XDDZZ		572-4826-01-0156	71279	TERMINAL	EA	1

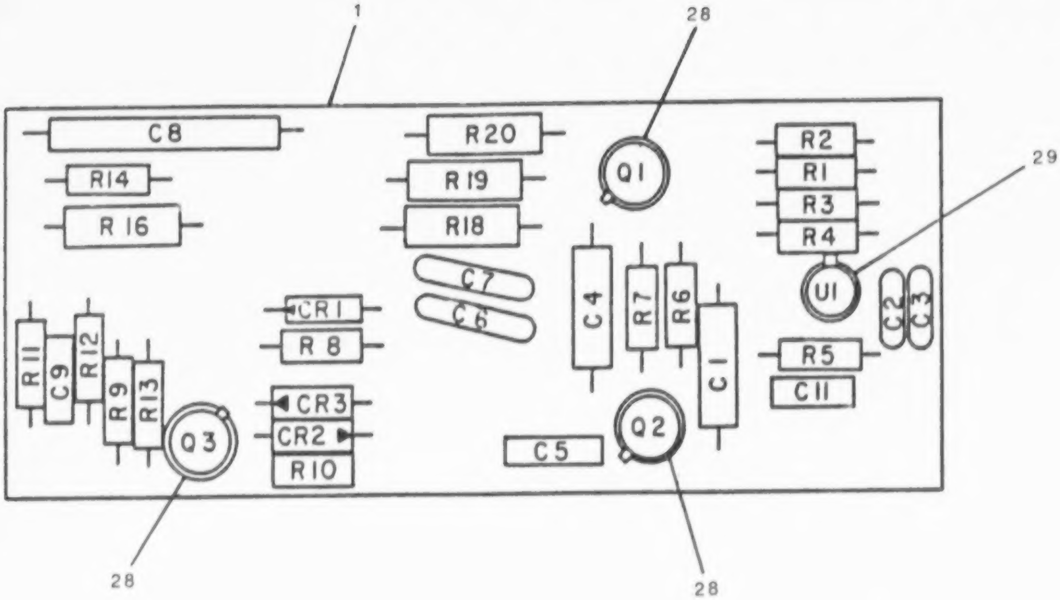


Figure C-14. CRT Control Module Printed Wiring Board Assembly (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	23										
CR2	24										
CR3	24										
C1	16										
C2	17										
C3	18										
C4	16										
C5	19										
C6	20										
C7	20										
C8	21										
C9	18										
C11	22										
Q1	26										
Q2	26										
Q3	27										
R1	3										
R2	7										
R3	4										
R4	5										
R5	6										
R6	8										
R7	8										
R8	9										
R9	10										
R10	9										
R11	11										
R12	12										
R13	12										
R14	30										
R16	13										
R18	14										
R19	14										
R20	15										
U1	25										

Figure C-14. CRT Control Module Printed Wiring Board Assembly (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - CRT CONTROL MODULE PW BOARD ASSY C5142159		
C-14		XDDDD		C5142160	57958	BOARD ASSY,CRT, CONTROL MODULE	EA	1
C-14	1	XA		C5142160-1	57958	BOARD,CRT,MODULE	EA	1
C-14	2	XDDZZ	5940-00-500-5644	2043-2	71279	TERMINAL (NOT SHOWN)	EA	12
C-14	3	PADZZ	5905-00-078-7060	RCR20G100JR	81349	RESISTOR	EA	1
C-14	4	PADZZ	5905-00-141-0595	RCR20G472JR	81349	RESISTOR	EA	1
C-14	5	PADZZ	5905-01-035-8068	RCR20G242JR	81349	RESISTOR	EA	1
C-14	6	PADZZ	5905-00-935-8539	RCR20G202JR	81349	RESISTOR	EA	1
C-14	7	PADZZ	5905-00-078-7066	RCR20G101JR	81349	RESISTOR	EA	1
C-14	8	PADZZ	5905-00-223-2469	RCR20G272JR	81349	RESISTOR	EA	2
C-14	9	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	2
C-14	10	PADZZ	5905-00-104-8331	RCR20G304JR	81349	RESISTOR	EA	1
C-14	11	PADZZ	5905-00-455-2296	RCR20G105JR	81349	RESISTOR	EA	1
C-14	12	PADZZ	5905-00-078-7067	RCR20G103JR	81349	RESISTOR	EA	2
C-14	13	PADZZ	5905-00-114-5416	RCR20G274JR	81349	RESISTOR	EA	1
C-14	14	PADZZ	5905-00-104-8346	RCR20G334JR	81349	RESISTOR	EA	2
C-14	15	PADZZ	5905-00-104-8331	RCR20G304JR	81349	RESISTOR	EA	1
C-14	16	PADZZ	5910-01-078-1569	M39003/01-2530	81349	CAPACITOR	EA	2
C-14	17	PADZZ	5910-00-113-5276	M39014/01-1271	81349	CAPACITOR	EA	1
C-14	18	PADZZ		M39014/01-1495	81349	CAPACITOR	EA	2
C-14	19	PADZZ	5910-01-248-7362	C5142164	57958	CAPACITOR	EA	1
C-14	20	PADZZ	5910-01-248-7363	C5142165	57958	CAPACITOR	EA	2
C-14	21	PADZZ		M39018/01-1168	81349	CAPACITOR	EA	1
C-14	22	PADZZ	5910-00-010-8666	M39014/01-1278	81349	CAPACITOR	EA	1
C-14	23	PADZZ	5961-00-139-1995	JANTX 1N985B	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-14	24	PADZZ	5961-00-324-3079	JANTX 1N4938	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-14	25	PADZZ		M38510/10901BGX	81349	MICROCIRCUIT	EA	1
C-14	26	PADZZ	5961-00-858-3826	JANTX2N2222A	81349	TRANSISTOR	EA	2
C-14	27	PADZZ	5961-00-240-2812	JANTX2N3637	81349	TRANSISTOR	EA	1
C-14	28	XDDZZ		MIL-M-38507C/022	81349	PAD,MTG	EA	3
C-14	29	XDDZZ		MIL-M-38527C/031	81349	PAD,MTG	EA	1
C-14	30	PADZZ	5905-01-035-4587	RCR20G243JR	81349	RESISTOR	EA	1

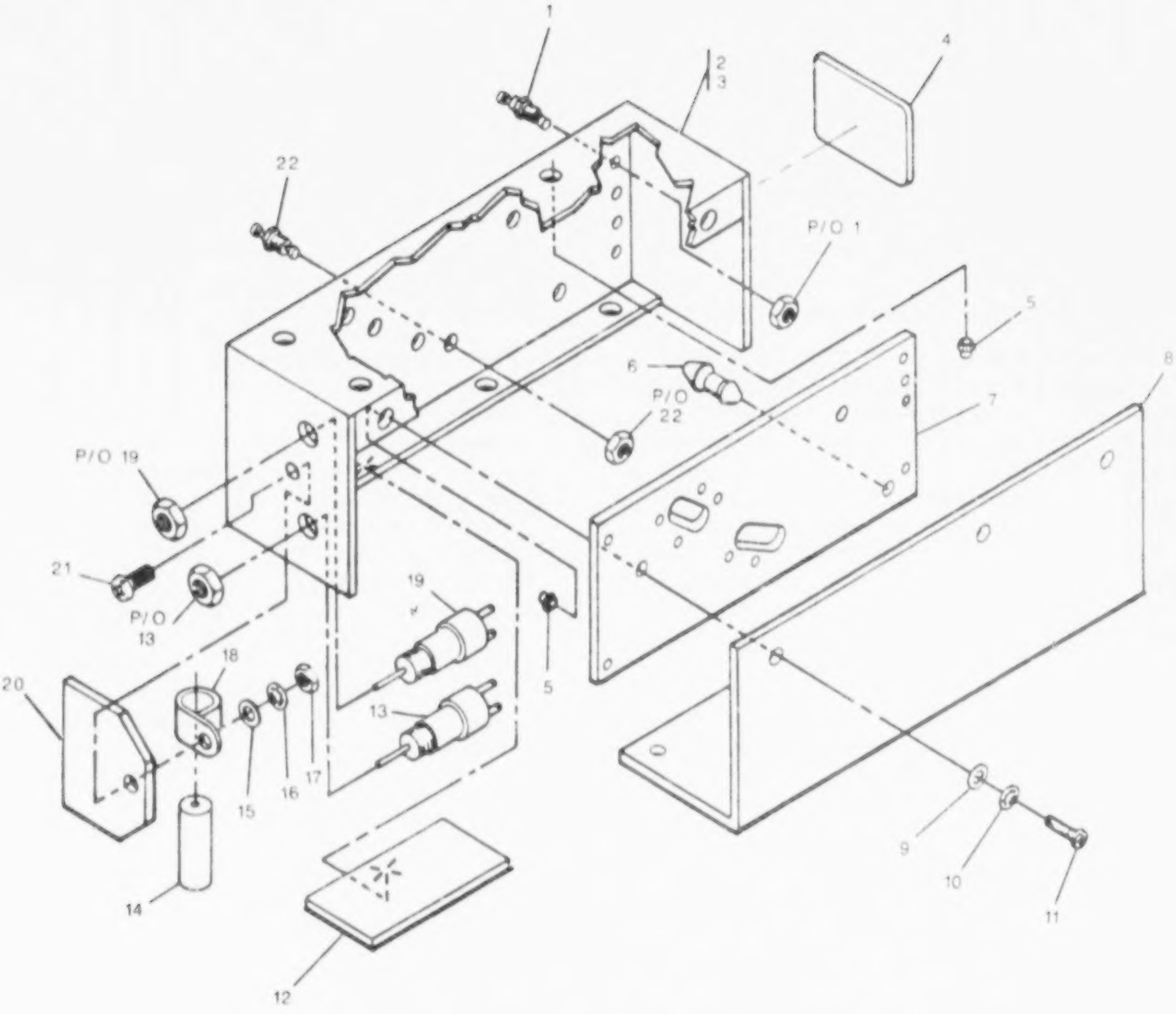
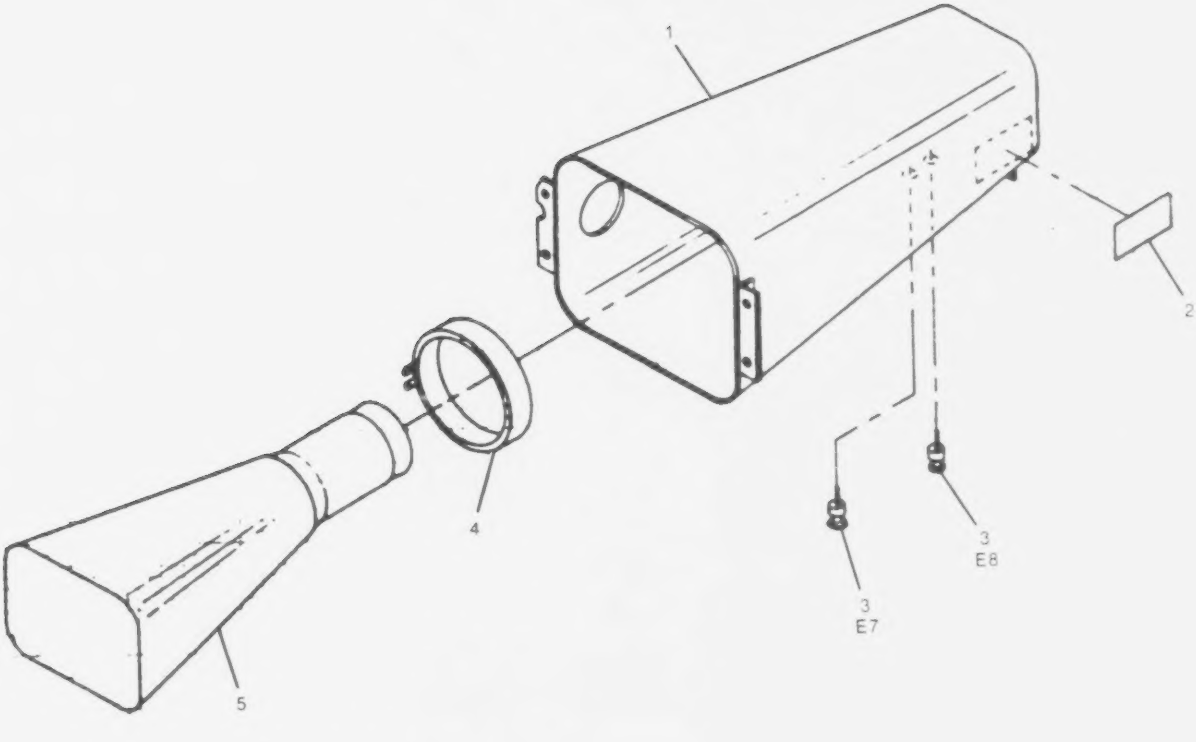


Figure C-15. CRT Control Module Assembly

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - CRT CONTROL MODULE ASSY C5142092		
C-15	1	XDDZZ	5940-00-665-4766	1430-4-11.2	88245	TERMINAL	EA	4
C-15	2	XDDDD		C5142155	57958	ENCLOSURE ASSY,CRT CONTROL MOD	EA	1
C-15	3	XDDZZ		C5142155-1	57958	ENCLOSURE	EA	1
C-15	4	XDDZZ		C5142181	57958	NAMEPLATE	EA	1
C-15	5	XDDZZ		CLS-440-1	99256	NUT,SLF-CLINCHING	EA	10
C-15	6	XDDZZ		LCBS-4R	06915	HOLDER,PCB	EA	3
C-15	7	PADDD	5865-01-248-7500	C5142159	57958	BOARD ASSY,CONTROL MODULE (SEE FIG C-14)	EA	1
C-15	8	XDDZZ		C5142156	57958	COVER,CONTROL MOD	EA	1
C-15	9	XDDZZ	5310-00-722-5998	MS15795-805	96906	WASHER	EA	6
C-15	10	XDDZZ	5310-00-616-3555	MS35333-71	96906	WASHER	EA	6
C-15	11	XDDZZ	5305-01-052-3303	MS24693-24	96906	SCREW	EA	6
C-15	12	XDDZZ		C5142168	57958	INSULATOR,HIGH VOLTAGE	EA	1
C-15	13	PADZZ	5905-01-069-0250	A1465-3	09087	RESISTOR,VAR	EA	1
C-15	14	PADZZ	5910-01-011-3376	M39022/02-1238	81349	CAPACITOR	EA	1
C-15	15	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	1
C-15	16	XDDZZ	5310-00-550-3715	MS35333-70	96906	WASHER	EA	1
C-15	17	XDDZZ	5310-00-934-9748	MS35649-244	96906	NUT	EA	1
C-15	18	XDDZZ	5340-01-054-8824	8944	83330	CLAMP,CAPACITOR	EA	1
C-15	19	PADZZ		A1465-1	09084	RESISTOR,VAR	EA	1
C-15	20	XDDZZ		C5142167	57958	INSULATOR,CAPACITOR	EA	1
C-15	21	XDDZZ	5305-00-054-5649	MS51957-15	96906	SCREW	EA	1
C-15	22	XDDZZ	5940-00-771-8139	1433-4-11.2	88245	TERMINAL	EA	4



C-16. CRT/SHIELD/TWIST Coil Assembly

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - CRT/SHIELD/ TWIST COIL ASSY C5142122		
C-16	1	XDDZZ		C5142131	57958	SHIELD	EA	1
C-16	2	XDDZZ		C5142181	57958	NAMEPLATE	EA	1
C-16	3	XDDZZ	5940-00-665-4766	1430-4-11.2	88245	TERMINAL	EA	2
C-16	4	XDDZZ		C5142132	57958	TWIST COIL	EA	1
C-16	5	XDDZZ		D14175GH	24972	CATHODE RAY TUBE	EA	1

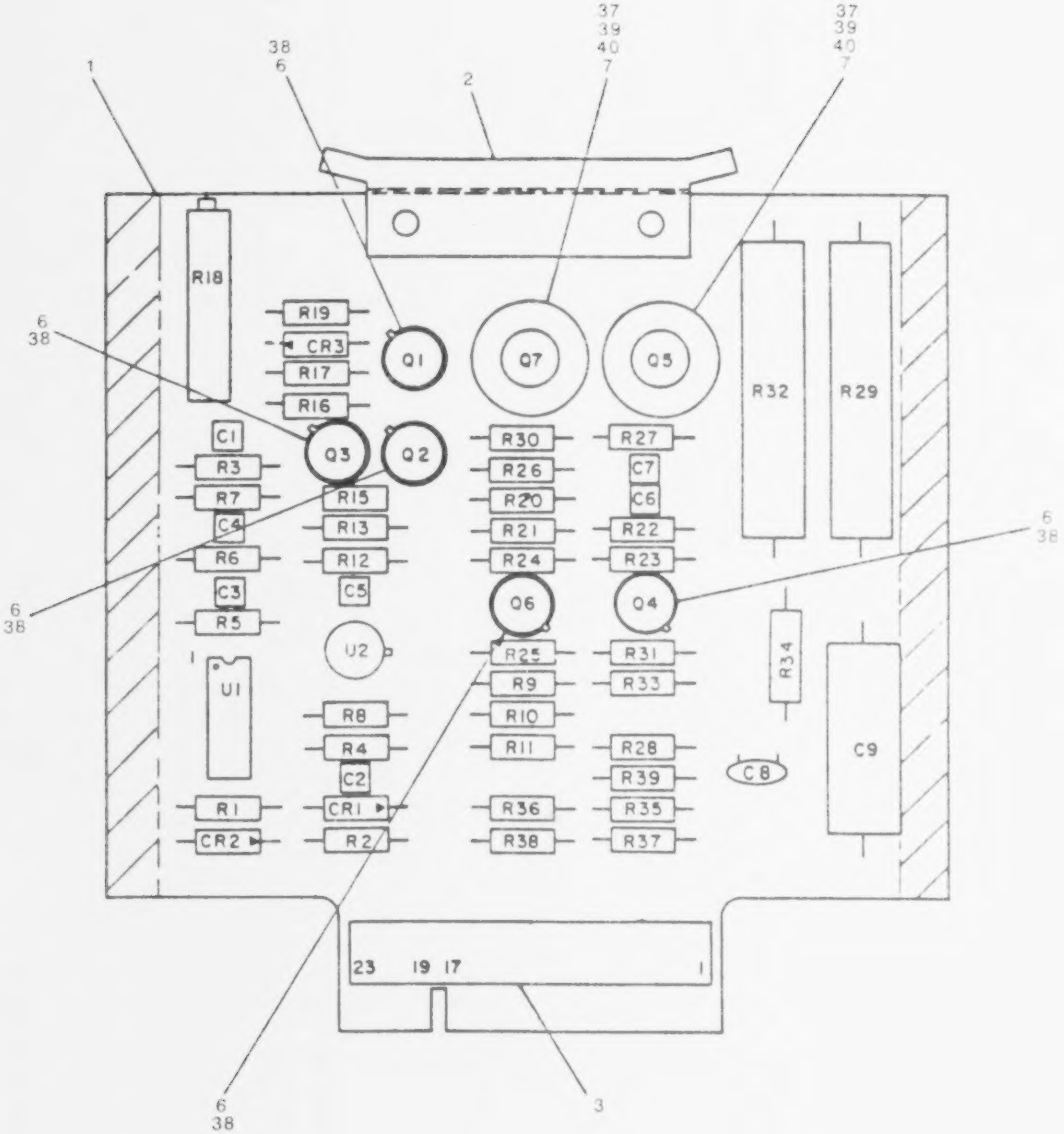


Figure C-17. Horizontal Amplifier Board Assembly
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	8	R27	30								
CR2	8	R28	31								
CR3	8	R29	32								
C1	9	R30	30								
C2	9	R31	31								
C3	9	R32	32								
C4	9	R33	33								
C5	10	R34	21								
C6	10	R35	34								
C7	10	R36	35								
C8	11	R37	34								
C9	12	R38	35								
Q1	6	R39	36								
Q2	6	U1	4								
Q3	6	U2	5								
Q4	6										
Q5	7										
Q6	6										
Q7	7										
R1	13										
R2	14										
R3	15										
R4	15										
R5	16										
R6	15										
R7	17										
R8	18										
R9	19										
R10	19										
R11	20										
R12	21										
R13	22										
R15	23										
R16	24										
R17	25										
R18	26										
R19	41										
R20	21										
R21	27										
R22	28										
R23	29										
R24	28										
R25	27										
R26	21										

Figure C-17. Horizontal Amplifier Board Assembly
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - HORIZONTAL AMPLIFIER BOARD ASSY C50742083		
C-17	1	XA		C5142103-1	57958	BOARD, HORIZ AMPL	EA	1
C-17	2	XDDZZ		75000000	11236	HANDLE,BOARD	EA	1
C-17	3	XDDZZ		422-023-520-100	31781	CONNECTOR	EA	1
C-17	4	PADZZ	5962-01-176-8296	CD4052BD/3	18714	MICROCIRCUIT, DIGITAL	EA	1
C-17	5	PADZZ	5962-00-101-2289	LM110H/883C	27014	MICROCIRCUIT, LINEAR	EA	1
C-17	6	PADZZ	5961-00-022-4386	JANTX2N2219A	81349	TRANSISTOR	EA	5
C-17	7	PADZZ	5961-00-272-8374	JANTX2N3440	81349	TRANSISTOR	EA	2
C-17	8	PADZZ	5961-01-043-9178	JANTX1N4454-1	81349	SEMICONDUCTOR DEVICE,DIODE	EA	3
C-17	9	PADZZ	5910-00-546-4209	M39014/01-1317	81349	CAPACITOR	EA	4
C-17	10	PADZZ	5910-01-219-4856	M39014/02-1310	81349	CAPACITOR	EA	2
C-17	11	PADZZ	5910-00-838-9421	CK60AW102M	81349	CAPACITOR	EA	1
C-17	12	PADZZ	5910-00-517-9158	M39022/02-1278	81349	CAPACITOR	EA	1
C-17	13	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	1
C-17	14	PADZZ	5905-00-078-7077	RCR20G182JR	81349	RESISTOR	EA	1
C-17	15	PADZZ	5905-00-078-7066	RCR20G101JR	81349	RESISTOR	EA	3
C-17	16	PADZZ	5905-00-434-1758	RNR55C3401FP	81349	RESISTOR	EA	1
C-17	17	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-17	18	PADZZ		RNR55C8252FSR	81349	RESISTOR	EA	1
C-17	19	PADZZ	5905-00-141-1187	RCR20G203JR	81349	RESISTOR	EA	2
C-17	20	PADZZ	5905-01-035-4588	RCR20G511JR	81349	RESISTOR	EA	1
C-17	21	PADZZ	5905-00-078-7060	RCR20G100JR	81349	RESISTOR	EA	4
C-17	22	PADZZ	5905-00-244-6555	RNR60C1872FS	81349	RESISTOR	EA	1
C-17	23	PADZZ	5905-00-482-5110	RNR60C1471FS	81349	RESISTOR	EA	1
C-17	24	PADZZ	5905-00-114-5425	RCR20G362JR	81349	RESISTOR	EA	1
C-17	25	PADZZ	5905-00-223-2469	RCR20G272JR	81349	RESISTOR	EA	1
C-17	26	PADZZ		RJR12FY501R	81349	RESISTOR	EA	1
C-17	27	PADZZ	5905-00-005-3370	RCR20G152JR	81349	RESISTOR	EA	2
C-17	28	PADZZ	5905-00-935-8543	RCR20G330JR	81349	RESISTOR	EA	2
C-17	29	PADZZ	5905-00-121-9922	RCR20G431JR	81349	RESISTOR	EA	1
C-17	30	PADZZ	5905-00-570-8265	RCR20G471JR	81349	RESISTOR	EA	2
C-17	31	PADZZ	5905-00-078-7086	RCR20G331JR	81349	RESISTOR	EA	2
C-17	32	PADZZ	5905-00-436-8782	RWR78S2002FR	81349	RESISTOR	EA	2

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-17	33	PADZZ	5905-00-236-9856	RCR20G121JR	81349	RESISTOR	EA	1
C-17	34	PADZZ		RCR20G434JR	81349	RESISTOR	EA	2
C-17	35	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	2
C-17	36	PADZZ	5905-00-106-9351	RCR20G273JR	81349	RESISTOR	EA	1
C-17	37	XDDZZ		MIL-M-38527C/022	81349	MOUNTING PAD,ELEC	EA	5
C-17	38	XDDZZ		MIL-H-87111/01H1	81349	HEATSINK	EA	2
C-17	39	XDDZZ	5305-00-054-5637	MS51957-3	96906	SCREW	EA	4
C-17	40	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	4
C-17	41	PADZZ	5905-00-111-4742	RCR20G391JR	81349	RESISTOR	EA	1

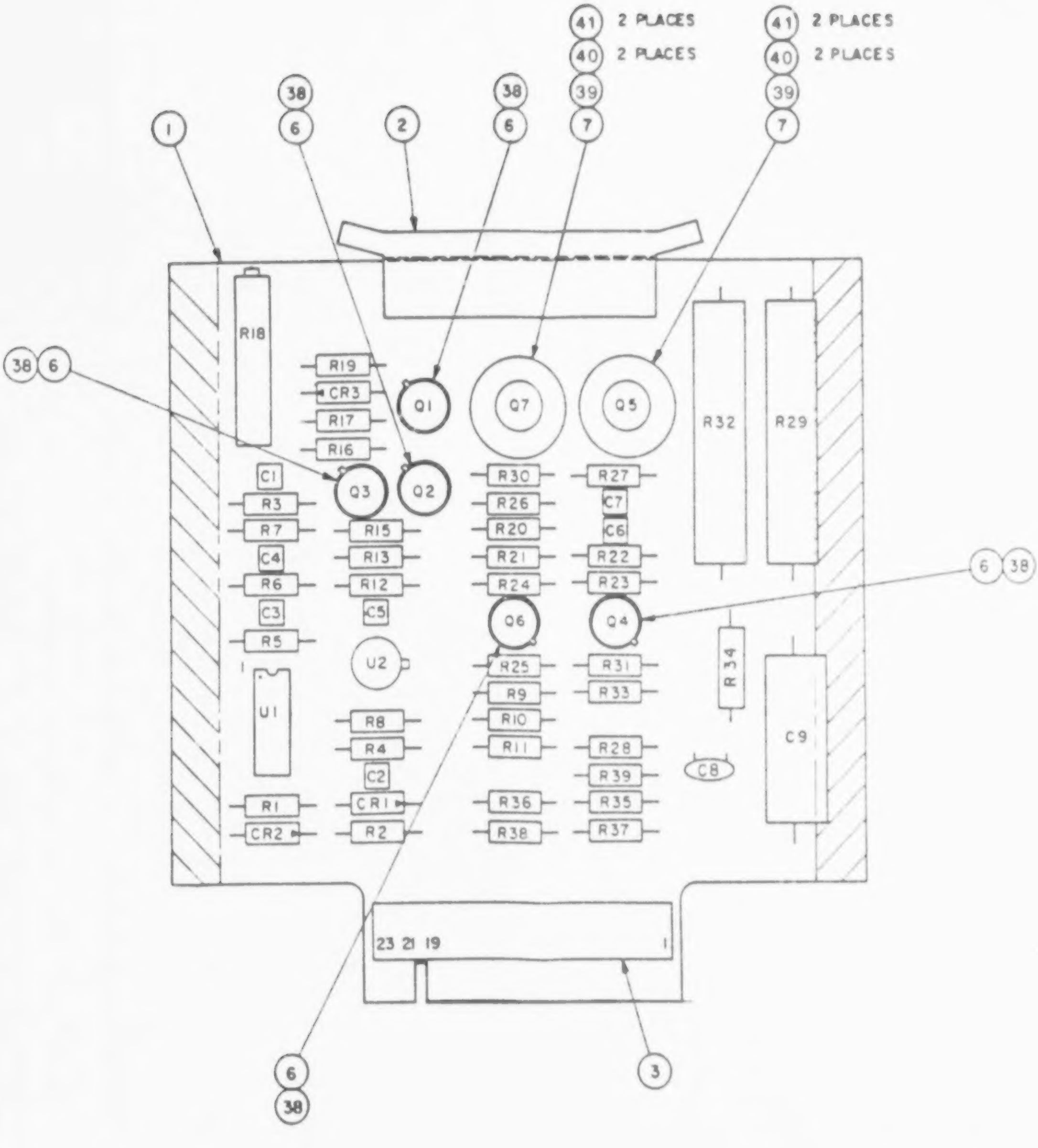


Figure C-18. Vertical Amplifier Board Assembly
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	8	R32	32								
CR2	8	R33	33								
CR3	8	R34	34								
C1	9	R35	35								
C2	9	R36	36								
C3	9	R37	35								
C4	9	R38	36								
Q1	6	R39	37								
Q2	6	U1	4								
Q3	6	U2	5								
Q4	6										
Q5	7										
Q6	6										
Q7	7										
R1	13										
R2	14										
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R19	27										
R20	21										
R21	28										
R22	21										
R23	29										
R24	21										
R25	28										
R26	21										
R27	30										
R28	31										
R29	32										
R30	30										
R31	31										

Figure C-18. Vertical Amplifier Board Assembly
(Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	(1) ILLUSTRATION ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - VERTICAL AMPLIFIER BOARD ASSY (A2) C50742082		
C-18	1	XA		C5142103-2	57958	VERTICAL AMPL BOARD	EA	1
C-18	2	XDDZZ		75000000	11236	HANDLE, BOARD	EA	1
C-18	3	XDDZZ		422-023-520-100	31781	CONNECTOR	EA	1
C-18	4	PADZZ	5962-01-127-2672	CD4052BF/3	02735	MICROCIRCUIT, DIGITAL	EA	1
C-18	5	PADZZ	5961-00-101-2289	LM110H/883C	27014	MICROCIRCUIT, LINEAR	EA	1
C-18	6	PADZZ	5961-00-022-4386	JANTX2N2219A	81349	TRANSISTOR	EA	5
C-18	7	PADZZ	5961-00-272-8374	JANTX2N3440	81349	TRANSISTOR	EA	2
C-18	8	PADZZ	5961-01-043-9178	JANTX1N4454-1	81349	SEMICONDUCTOR DEVICE, DIODE	EA	3
C-18	9	PADZZ	5910-00-546-4209	M39014/01-1317	81349	CAPACITOR	EA	4
C-18	10	PADZZ	5910-01-219-4856	M39014/02-1310	81349	CAPACITOR	EA	3
C-18	11	PADZZ	5910-00-838-9421	CK60AW102M	81349	CAPACITOR	EA	1
C-18	12	PADZZ	5910-00-517-9158	M39022/02-1278	81349	CAPACITOR	EA	1
C-18	13	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	1
C-18	14	PADZZ	5905-00-078-7077	RCR20G182JR	81349	RESISTOR	EA	1
C-18	15	PADZZ	5905-00-078-7066	RCR20G101JR	81349	RESISTOR	EA	3
C-18	16	PADZZ	5905-00-405-7841	RNR55C2492FP	81349	RESISTOR	EA	1
C-18	17	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-18	18	PADZZ		RNR55C8252FSRJ	81349	RESISTOR	EA	1
C-18	19	PADZZ	5905-00-141-1187	RCR20G203JR	81349	RESISTOR	EA	2
C-18	20	PADZZ	5905-01-035-4588	RCR20G511JR	81349	RESISTOR	EA	1
C-18	21	PADZZ	5905-00-078-7060	RCR20G100JR	81349	RESISTOR	EA	5
C-18	22	PADZZ	5905-00-448-2445	RNR60C2372FS	81349	RESISTOR	EA	1
C-18	23	PADZZ	5905-00-482-5110	RNR60C1471FP	81349	RESISTOR	EA	1
C-18	24	PADZZ	5905-00-114-5425	RCR20G362JR	81349	RESISTOR	EA	1
C-18	25	PADZZ	5905-00-223-2469	RCR20G272JR	81349	RESISTOR	EA	1
C-18	26	PADZZ		RJR12FY501R	81349	RESISTOR	EA	1
C-18	27	PADZZ	5905-00-111-4742	RCR20G391JR	81349	RESISTOR	EA	1
C-18	28	PADZZ	5905-00-005-3370	RCR20G152JR	81349	RESISTOR	EA	2
C-18	29	PADZZ	5905-00-116-8562	RCR20G361JR	81349	RESISTOR	EA	1
C-18	30	PADZZ	5905-00-570-8265	RCR20G471JR	81349	RESISTOR	EA	2
C-18	31	PADZZ	5905-00-121-9922	RCR20G431JR	81349	RESISTOR	EA	2
C-18	32	PADZZ	5905-01-037-1211	RWR78N1002FR	81349	RESISTOR	EA	2
C-18	33	PADZZ	5905-00-236-9856	RCR20G121JR	81349	RESISTOR	EA	1
C-18	34	PADZZ		RNR74S6811FR	81349	RESISTOR	EA	1
C-18	35	PADZZ		RCR20G434JR	81349	RESISTOR	EA	2
C-18	36	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	2
C-18	37	PADZZ	5905-00-106-9351	RCR20G273JR	81349	RESISTOR	EA	1
C-18	38	XDDZZ		MIL-M-38527C/022	81349	MOUNTING PAD, ELEC	EA	5
C-18	39	XDDZZ		MIL-M-87111/01H1	81349	HEATSINK	EA	2
C-18	40	XDDZZ	5305-00-054-5637	MS51957-3	81349	SCREW	EA	4
C-18	41	XDDZZ	5310-00-543-4652	MS35333-69	81349	WASHER	EA	4

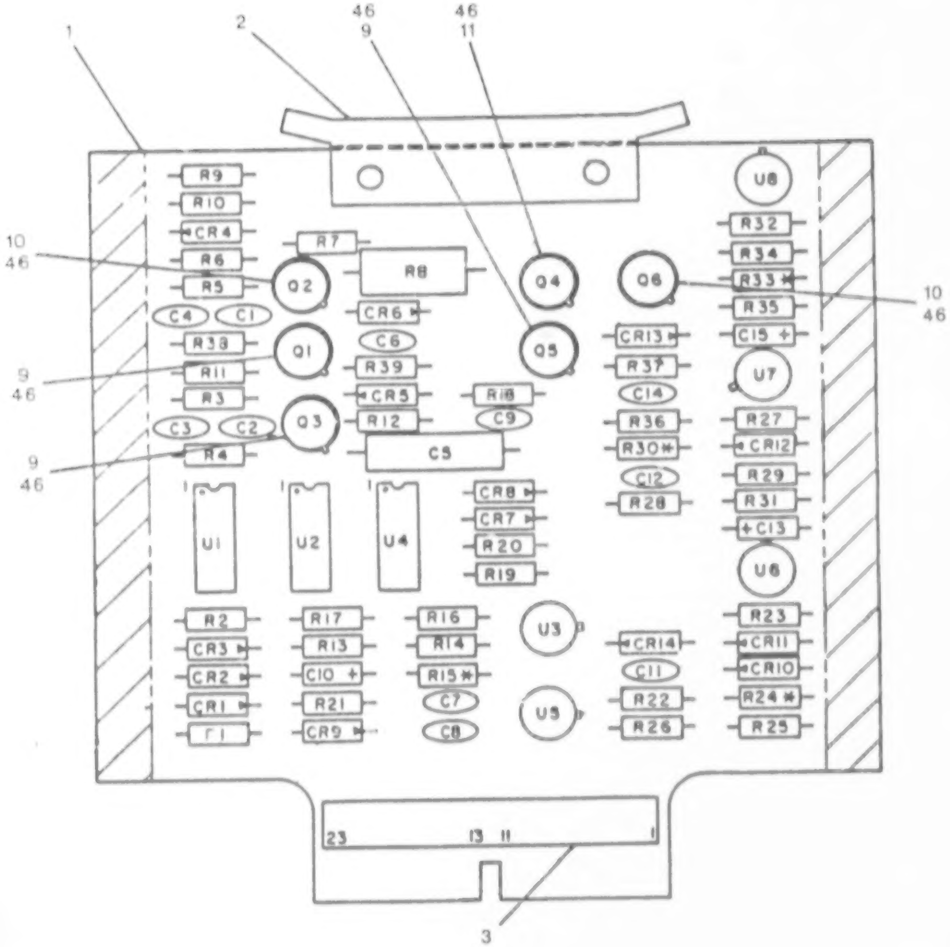

Figure C-19. Z Axis/Test/Regulator Board Assembly
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	12	R10	37								
CR2	12	R11	38								
CR3	13	R12	39								
CR4	12	R13	40								
CR5	12	R14	41								
CR6	14	R15	42								
CR7	12	R16	47								
CR8	12	R17	33								
CR9	15	R18	48								
CR10	16	R19	48								
CR11	17	R20	49								
CR12	18	R21	50								
CR13	19	R22	51								
CR14	20	R23	52								
C1	21	R24	43								
C2	22	R25	36								
C3	23	R26	36								
C4	22	R27	54								
C5	24	R28	50								
C6	23	R29	52								
C7	25	R30	44								
C8	25	R31	52								
C9	26	R32	52								
C10	27	R33	45								
C11	28	R34	33								
C12	28	R35	40								
C13	27	R36	40								
C14	28	R37	53								
C15	27	R38	55								
Q1	9	R39	36								
Q2	10	U1	4								
Q3	9	U2	4								
Q4	11	U3	5								
Q5	9	U4	6								
Q6	10	U5	7								
R1	29	U6	8								
R2	30	U7	8								
R3	31	U8	8								
R4	31										
R5	32										
R6	33										
R7	34										
R8	35										
R9	36										

Figure C-19. Z Axis/Test/Regulator Board Assembly (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - Z AXIS/ TEST/ REGULATOR BOARD ASSY C50742084		
C-19	1	XA		C5142105	57958	BOARD,Z AXIS/ TEST/REGULATOR	EA	1
C-19	2	XDDZZ		75000000	11236	HANDLE,BOARD	EA	1
C-19	3	XDDZZ		422-023-520-100	31781	CONNECTOR	EA	1
C-19	4	PADZZ	5962-00-527-9226	M38510/02701BCB	81349	MICROCIRCUIT	EA	2
C-19	5	PADZZ	5962-01-049-0349	M38510/10901BGC	81349	MICROCIRCUIT	EA	1
C-19	6	PADZZ	5962-01-070-8432	M38510/31502BCX	81349	MICROCIRCUIT	EA	1
C-19	7	PADZZ	5961-00-101-2289	LM110H/883C	27014	MICROCIRCUIT,LINEAR	EA	1
C-19	8	PADZZ		UA723HMQBIF	07263	MICROCIRCUIT,DIGITAL	EA	3
C-19	9	PADZZ	5961-00-415-5994	JANTX2N3500	81349	TRANSISTOR	EA	3
C-19	10	PADZZ	5961-00-240-2812	JANTX2N3637	81349	TRANSISTOR	EA	2
C-19	11	PADZZ	5961-00-272-8374	JANTX2N3440	81349	TRANSISTOR	EA	1
C-19	12	PADZZ	5961-01-043-9178	JANTX1N4454-1	81349	SEMICONDUCTOR DEV,DIODE	EA	6
C-19	13	PADZZ	5961-01-102-5719	JANTX1N751A-1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	14	PADZZ	5961-01-041-7304	JANTX1N4983	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	15	PADZZ	5961-00-626-0041	JANTX1N645-1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	16	PADZZ	5961-00-494-4917	JANTX1N963B-1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	17	PADZZ	5961-01-095-0046	JANTX1N755A1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	18	PADZZ	5961-01-126-5349	JANTX1N747A-1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	19	PADZZ	5961-01-206-3973	JANTX1N753A-1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	20	PADZZ	5961-01-088-8346	JANTX1N757A-1	81349	SEMICONDUCTOR DEV,DIODE	EA	1
C-19	21	PADZZ	5910-00-113-5276	M39014/01-1311	81349	CAPACITOR	EA	1
C-19	22	PADZZ	5910-00-113-5515	M39014/01-1293	81349	CAPACITOR	EA	2
C-19	23	PADZZ	5910-00-546-4209	M39014/01-1317	81349	CAPACITOR	EA	2
C-19	24	PADZZ	5910-01-131-3429	M39018/01-1153M	81349	CAPACITOR	EA	1
C-19	25	PADZZ	5910-00-544-5790	M39014/01-1535	81349	CAPACITOR	EA	2
C-19	26	PADZZ	5910-01-219-4856	M39014/02-1310	81349	CAPACITOR	EA	1
C-19	27	PADZZ	5910-00-600-2626	M39003/01-2495	81349	CAPACITOR	EA	3
C-19	28	PADZZ	5910-00-546-4209	M39014/01-1317	81349	CAPACITOR	EA	3

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-19	29	PADZZ	5905-01-035-4585	RCR20G201JR	81349	RESISTOR	EA	1
C-19	30	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	1
C-19	31	PADZZ	5905-00-689-3021	RCR20G102JR	81349	RESISTOR	EA	2
C-19	32	PADZZ	5905-00-114-5441	RCR20G563JR	81349	RESISTOR	EA	1
C-19	33	PADZZ	5905-00-223-2469	RCR20G272JR	81349	RESISTOR	EA	3
C-19	34	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	1
C-19	35	PADZZ	5905-00-576-5273	RWR74S4641FR	81349	RESISTOR	EA	1
C-19	36	PADZZ	5905-00-078-7067	RCR20G103JR	81349	RESISTOR	EA	4
C-19	37	PADZZ	5905-01-051-5461	RCR20G623JR	81349	RESISTOR	EA	1
C-19	38	PADZZ	5905-00-570-8265	RCR20G471JR	81349	RESISTOR	EA	1
C-19	39	PADZZ	5905-00-141-0723	RCR20G621JR	81349	RESISTOR	EA	1
C-19	40	PADZZ	5905-00-114-5425	RCR20G362JR	81349	RESISTOR	EA	3
C-19	41	PADZZ	5905-00-481-7871	RNR55C1472FS	81349	RESISTOR	EA	1
C-19	42	XC		C5142184 (selected at test from the following:)	57958	KIT LIST,R15 RES	EA	1
C-19	42	PADZZ	5905-00-005-3370	RCR20G152JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-141-1268	RCR20G162JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-078-7077	RCR20G182JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-935-8539	RCR20G202JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-078-7079	RCR20G222JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-01-035-8068	RCR20G242JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-223-2469	RCR20G272JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-01-042-1174	RCR20G302JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-689-3022	RCR20G332JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-114-5425	RCR20G362JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-005-3369	RCR20G392JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-141-1165	RCR20G682JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-104-8346	RCR20G334JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-106-9345	RCR20G683JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-689-3022	RCR20G332JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-01-035-4581	RCR20G132JR	81349	RESISTOR	EA	1
C-19	42	PADZZ	5905-00-005-3369	RCR20G392JR	81349	RESISTOR	EA	1
C-19	43	XC		C5142185	57958	KIT LIST,R24 RES	EA	1
C-19	43			(selected at test from the following:)				
C-19	43	PADZZ	5905-00-078-7067	RCR20G103JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5359	RCR20G113JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-689-3019	RCR20G123JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-111-4841	RCR20G133JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-106-1273	RCR20G153JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-111-4746	RCR20G163JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-01-053-7629	RCR20G183JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-141-1187	RCR20G203JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-106-1282	RCR20G223JR	81349	RESISTOR	EA	1

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(1) ILLUSTRATION FIG NO	(1) ILLUSTRATION ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-19	43	PADZZ	5905-01-035-4587	RCR20G243JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-106-9351	RCR20G273JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5489	RCR20G823JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-01-035-4590	RCR20G913JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-116-8557	RCR20G114JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-104-8335	RCR20G124JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-01-035-4582	RCR20G134JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-935-8542	RCR20G303JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-104-8330	RCR20G333JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-005-7174	RCR20G393JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5430	RCR20G433JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-141-0597	RCR20G513JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5441	RCR20G563JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-01-051-5461	RCR20G623JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-106-9345	RCR20G683JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-113-4854	RCR20G753JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-104-8346	RCR20G334JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-141-0725	RCR20G364JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5428	RCR20G394JR	81349	RESISTOR	EA	1
C-19	43	PADZZ		RCR20G434JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-141-1071	RCR20G474JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-111-4840	RCR20G514JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-608-7454	RCR20G154JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5378	RCR20G164JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-455-2298	RCR20G184JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-116-8560	RCR20G204JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5393	RCR20G224JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5401	RCR20G244JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5416	RCR20G274JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-104-8331	RCR20G304JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-01-101-4528	RCR20G564JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-111-4733	RCR20G624JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-114-5456	RCR20G684JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-111-4739	RCR20G754JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-104-8339	RCR20G824JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-111-6010	RCR20G914JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-455-2296	RCR20G105JR	81349	RESISTOR	EA	1
C-19	43	PADZZ	5905-00-141-0595	RCR20G472JR	81349	RESISTOR	EA	1
C-19	44	XC		C5142186 (selected at test from the following:)	57958	KIT LIST,R30 RES	EA	1
C-19	44	PADZZ	5905-00-111-4744	RCR20G512JR	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-19	44	PADZZ	5905-00-141-1116	RCR20G562JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-229-8890	RCR20G622JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-1165	RCR20G682JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-116-8568	RCR20G752JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-0600	RCR20G822JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-116-8570	RCR20G912JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-078-7067	RCR20G103JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5359	RCR20G113JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-689-3019	RCR20G123JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-111-4841	RCR20G133JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-106-1273	RCR20G153JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-111-4746	RCR20G163JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-01-053-7629	RCR20G183JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-1187	RCR20G203JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-106-1282	RCR20G223JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-01-035-4587	RCR20G243JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-106-9351	RCR20G273JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-935-8542	RCR20G303JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-104-8330	RCR20G333JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-005-7174	RCR20G393JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5430	RCR20G433JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-0597	RCR20G513JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5441	RCR20G563JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-01-051-5461	RCR20G623JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-106-9345	RCR20G683JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-113-4854	RCR20G753JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5489	RCR20G823JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-01-035-4590	RCR20G913JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-01-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-116-8557	RCR20G114JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-104-8335	RCR20G124JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-01-035-4852	RCR20G134JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-608-7454	RCR20G154JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5378	RCR20G164JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-455-2298	RCR20G184JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-116-8560	RCR20G204JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5393	RCR20G224JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5401	RCR20G244JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5416	RCR20G274JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-104-8331	RCR20G304JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-104-8346	RCR20G334JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-0725	RCR20G364JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-114-5428	RCR20G394JR	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-19	44	PADZZ		RCR20G434JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-141-1071	RCR20G474JR	81349	RESISTOR	EA	1
C-19	44	PADZZ	5905-00-111-4840	RCR20G514JR	81349	RESISTOR	EA	1
C-19	45	XC		C5142187 (selected at test from the following:)	57958	KIT LIST,R33 RES	EA	1
C-19	45	PADZZ	5905-00-005-3369	RCR20G392JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-078-7087	RCR20G432JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-0595	RCR20G472JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-111-4744	RCR20G512JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-1116	RCR20G562JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-0600	RCR20G822JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-116-8570	RCR20G912JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-078-7067	RCR20G103JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5359	RCR20G113JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-689-3019	RCR20G123JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-111-4841	RCR20G133JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-106-1273	RCR20G153JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-111-4746	RCR20G163JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-689-3020	RCR20G104JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-116-8557	RCR20G114JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-104-8335	RCR20G124JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-01-035-4582	RCR20G134JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-608-7454	RCR20G154JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5378	RCR20G164JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-455-2298	RCR20G184JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-116-8560	RCR20G204JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5393	RCR20G224JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5401	RCR20G244JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5416	RCR20G274JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-104-8331	RCR20G304JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-104-8346	RCR20G334JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-0725	RCR20G364JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5428	RCR20G394JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-1116	RCR20G562JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-229-8890	RCR20G622JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-1165	RCR20G682JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-116-8568	RCR20G752JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-01-053-7629	RCR20G183JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-1187	RCR20G203JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-106-1282	RCR20G223JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-01-035-4587	RCR20G243JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-106-9351	RCR20G273JR	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-19	45	PADZZ	5905-00-935-8542	RCR20G303JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-104-8330	RCR20G333JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-104-8340	RCR20G363JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-005-7174	RCR20G393JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5430	RCR20G433JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-0596	RCR20G473JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-141-0597	RCR20G513JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5441	RCR20G563JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-01-051-5461	RCR20G623JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-106-9345	RCR20G683JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-113-4854	RCR20G753JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-00-114-5489	RCR20G823JR	81349	RESISTOR	EA	1
C-19	45	PADZZ	5905-01-035-4590	RCR20G913JR	81349	RESISTOR	EA	1
C-19	46	XDDZZ		MIL-M-38527C/022	81349	MOUNTING PAD,ELEC	EA	6
C-19	47	PADZZ	5905-00-141-1165	RCR20G682JR	81349	RESISTOR	EA	1
C-19	48	PADZZ	5905-00-104-8346	RCR20G334JR	81349	RESISTOR	EA	2
C-19	49	PADZZ	5905-00-106-9345	RCR20G683JR	81349	RESISTOR	EA	1
C-19	50	PADZZ	5905-00-689-3022	RCR20G332JR	81349	RESISTOR	EA	2
C-19	51	PADZZ	5905-01-035-4581	RCR20G132JR	81349	RESISTOR	EA	1
C-19	52	PADZZ	5905-00-005-3369	RCR20G392JR	81349	RESISTOR	EA	4
C-19	53	PADZZ	5905-00-141-1116	RCR20G562JR	81349	RESISTOR	EA	1
C-19	54	PADZZ	5905-00-141-0595	RCR20G472JR	81349	RESISTOR	EA	1
C-19	55	PADZZ	5905-01-689-3020	RCR20G104JR	81349	RESISTOR	EA	1

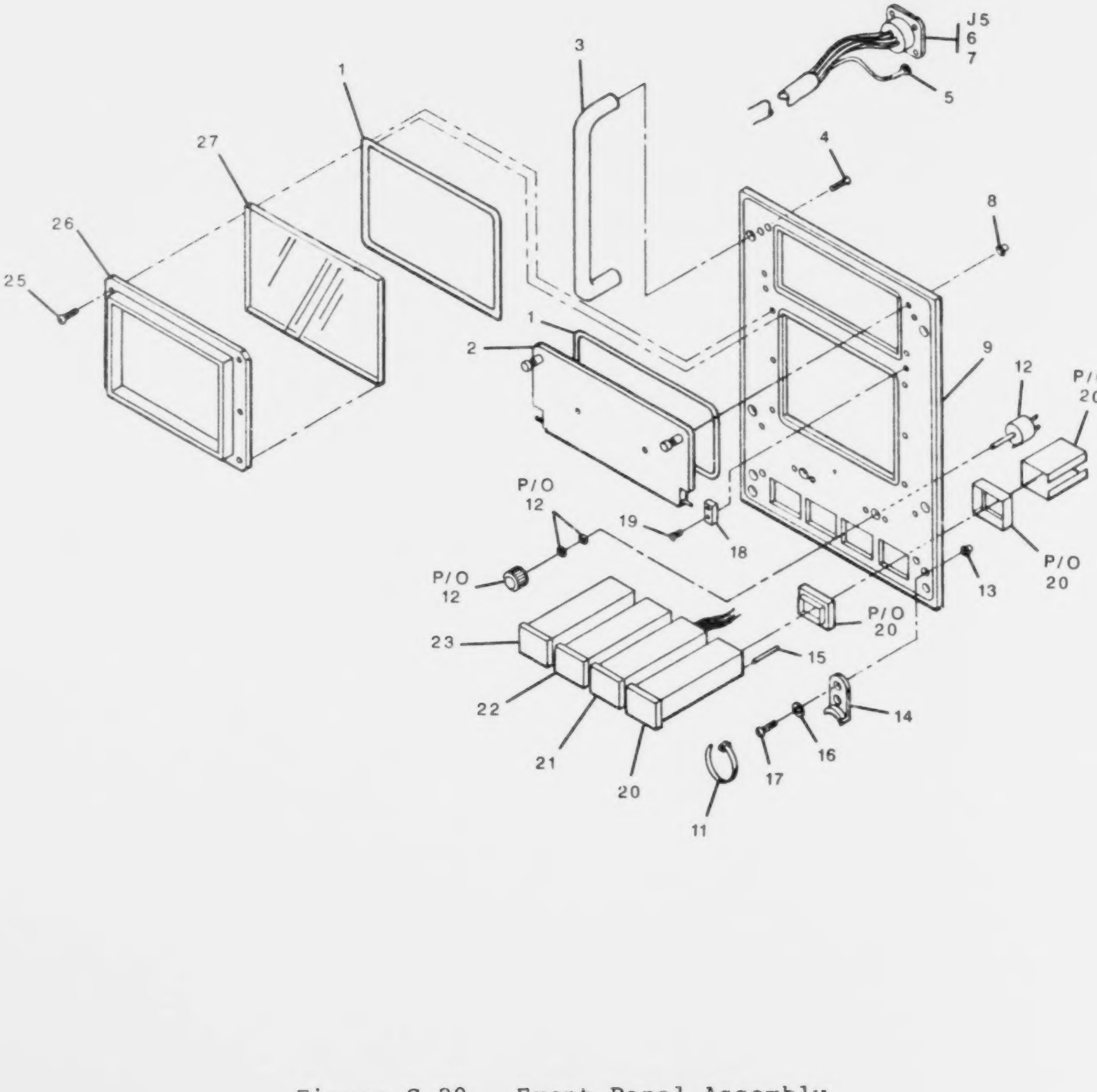


Figure C-20. Front Panel Assembly

(1) ILLUSTRATION FIG NO	(1) ILLUSTRATION ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 2302 - FRONT PANEL ASSY C5142081		
C-20	1	XDOZZ	5999-01-028-4179	10-05-1363-1405	18565	GASKET,STRIP	EA	2
C-20	2	XDOZZ		C5142100	57958	ACCESS DOOR ASSY	EA	1
C-20	3	XDOZZ		10359-SS-0832-7	06540	HANDLE	EA	2
C-20	4	XDDZZ	5305-00-068-5287	MS24693-C49	96906	SCREW	EA	4
C-20	5	XDDZZ	5940-00-682-2477	MS77068-1	96906	TERMINAL,LUG	EA	1
C-20	6	PADZZ		MS27508E14F35P	96906	CONNECTOR	EA	1
C-20	7	XDDZZ	5999-00-473-3551	M39029/58-360	81349	CONTACT	EA	35
C-20	8	XDDZZ	5310-00-800-0074	CLS-440-3	46384	NUT,SLF-LKG,CLINCH	EA	2
C-20	9	XDDDD		C5142098	57958	FRONT PANEL ASSY	EA	1
C-20	10					NOT USED		
C-20	11	XDDZZ	5975-00-111-3208	MS3367-5-9	96906	STRAP	EA	15
C-20	12	PADZZ	5905-00-577-1761	RV6NAYSD102A	81349	RESISTOR	EA	2
C-20	13	XDDZZ	5340-00-759-6438	FE-832	46384	NUT,SLF-LKG,CLINCH	EA	4
C-20	14	XDOZZ	3460-00-876-2922	94867HDH-4	94867	HOOK,HOLDOWN	EA	2
C-20	15	XDDZZ		M39029/1-16-20	81349	CONTACT	EA	34
C-20	16	XDOZZ	5310-00-880-5978	MS15795-807	96906	WASHER	EA	4
C-20	17	XDOZZ	5305-00-054-6669	MS51957-44	96906	SCREW	EA	4
C-20	18	XDOZZ		C5142101	57958	HINGE BLOCK	EA	2
C-20	19	XDOZZ	5305-00-727-8833	MS51959-3	96906	SCREW	EA	4
C-20	20	PADZZ		10648EL2-1	08719	SWITCH,PUSH	EA	1
C-20	21	PADZZ	5930-01-065-3001	10648EL2-2	08719	SWITCH,PUSH	EA	1
C-20	22	PADZZ		10648EL2-3	08719	SWITCH,PUSH	EA	1
C-20	23	PADZZ		10648EL2-4	08719	SWITCH,PUSH	EA	1
C-20	24	XDOZZ		MS91528-0N1	96906	CONTROL KNOB	EA	2
C-20	25	XDOZZ	5305-01-139-2033	NAS1189E02P5L	80205	SCREW	EA	6
C-20	26	XDOZZ		C5142099	57958	BEZEL ASSY	EA	1
C-20	27	XDOZZ		C5142102	57958	WINDOW,OBSERVATION	EA	1

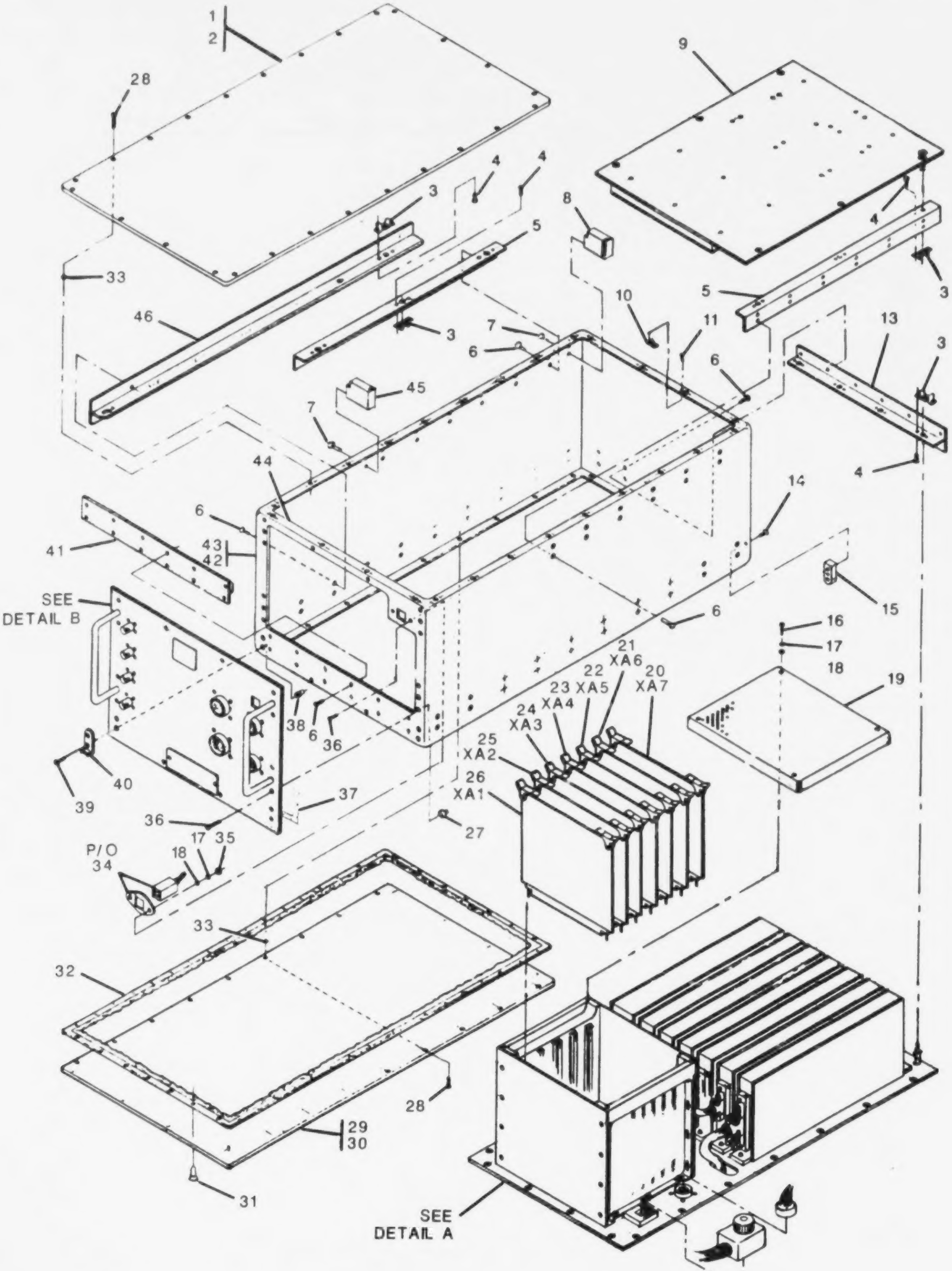


Figure C-21. Indicator Control, DF (Sheet 1 of 3)

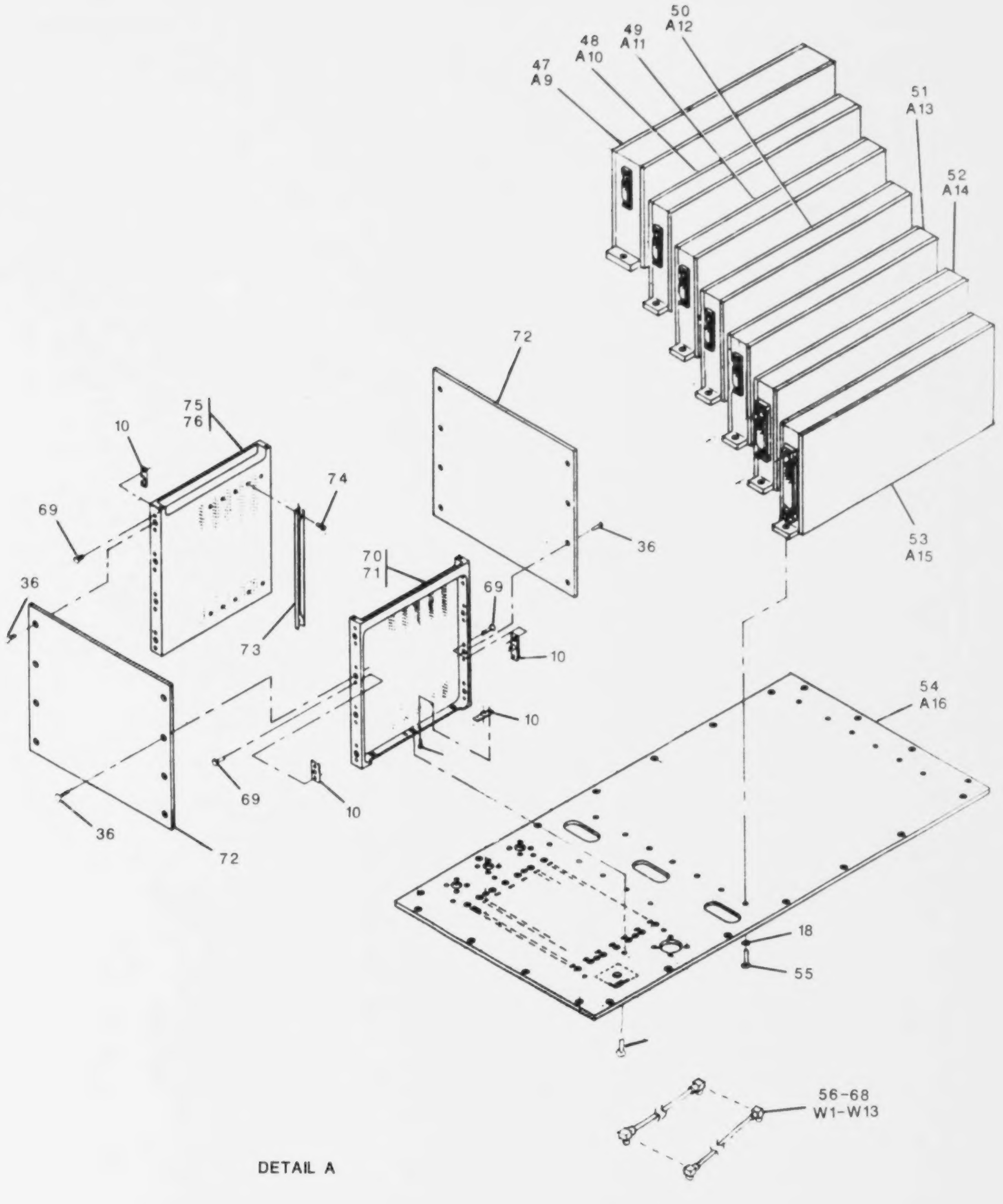


Figure C-21. Indicator Control, DF (Sheet 2 of 3)

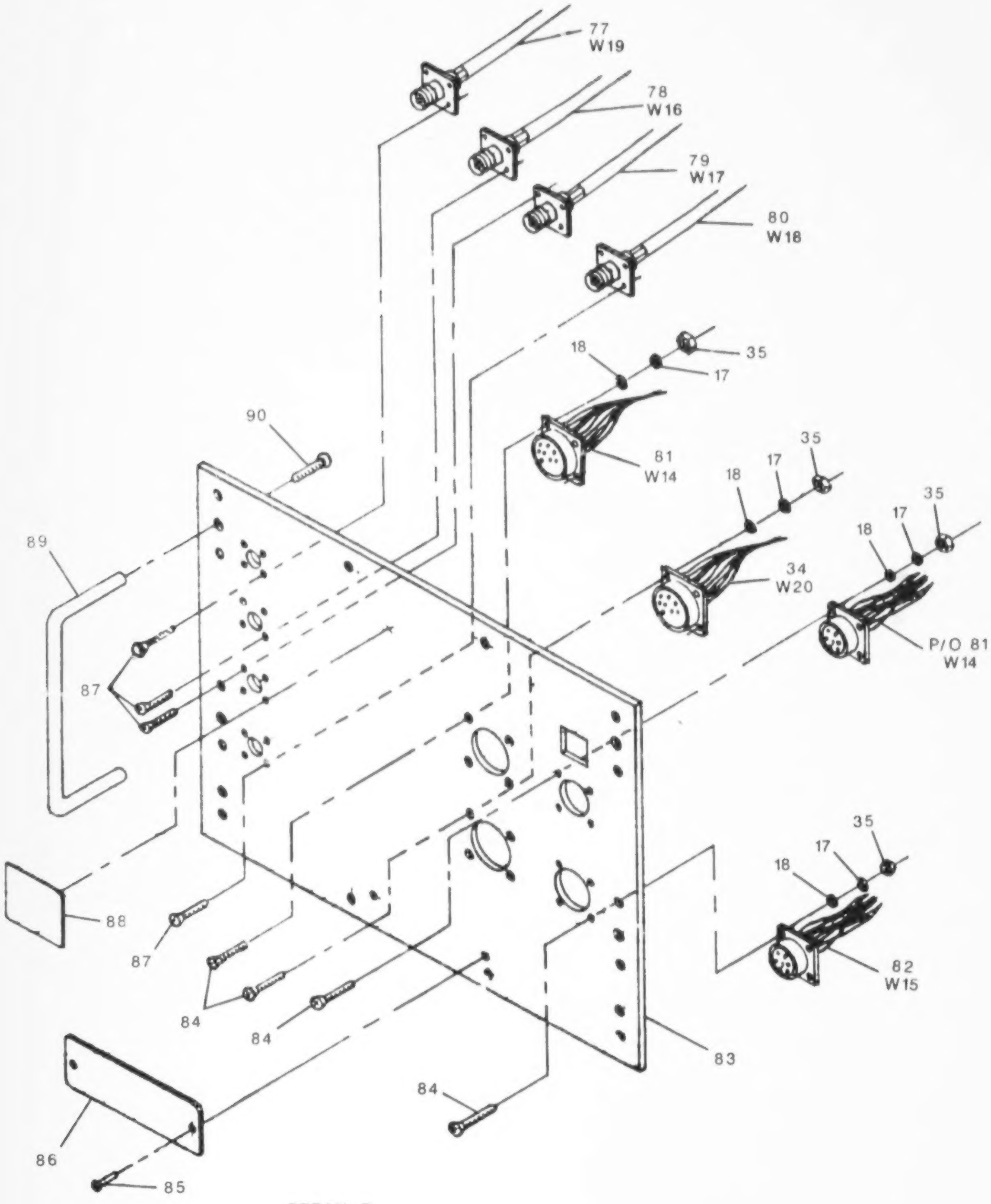
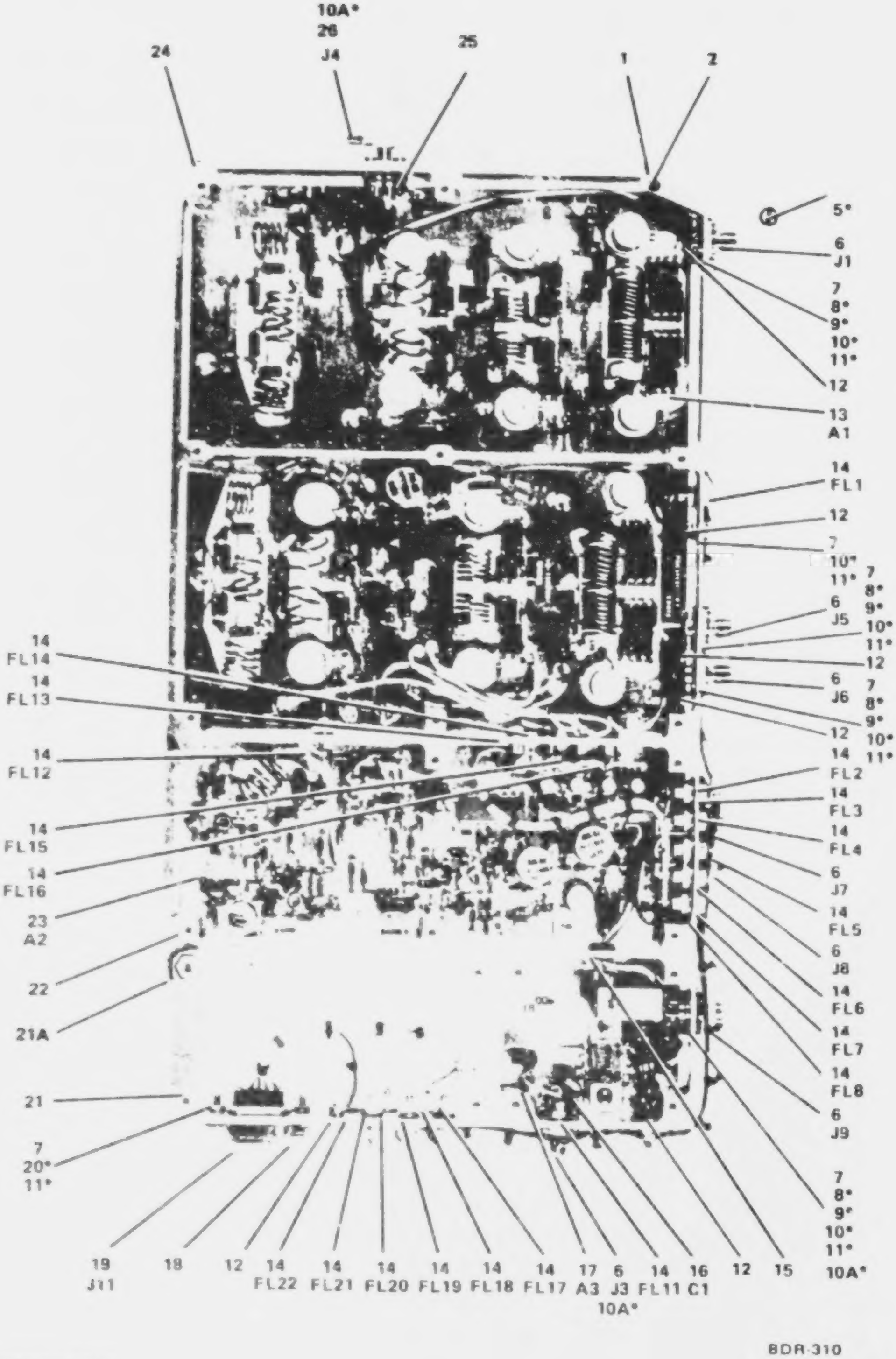


Figure C-21. Indicator Control, DF (Sheet 3 of 3)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 31 - INDICATOR CONTROL, DIRECTION FINDING 1951-1-4027-1		
C-21	1	XDHHH		1951-1-5023-2	15942	COVER,ACCESS	EA	1
C-21	2	XA		1951-1-5023-501	15942	COVER,ACCESS	EA	1
C-21	3	XDHZZ	5325-00-758-0113	5R2-3	71286	RECEPTACLE,TURNLOCK	EA	28
C-21	4	XDHZZ	5320-00-117-6938	MS20426AD3-4	96906	RIVET	EA	56
C-21	5	XDHZZ		1951-1-5022-506	15942	CHASSIS,ANGLE	EA	2
C-21	6	XDHZZ	5320-00-117-6951	MS20426AD4-6	96906	RIVET	EA	88
C-21	7	XDHZZ	5305-00-763-6009	MS24693-C1	96906	SCREW	EA	4
C-21	8	XDHZZ		1951-1-3247-1	15942	BLOCK,SUPPORT	EA	1
C-21	9	PAHDD	5865-01-066-1618	1951-1-4204-1	15942	ELECTRONIC COMPONENT ASSY,FRONT END	EA	1
C-21	10	XDDZZ	5310-00-073-9190	MK1301-04	15653	NUT,PLAIN,PLATE	EA	74
C-21	11	XDHZZ	5320-00-117-6929	MS20426AD2-4	96906	RIVET	EA	104
C-21	12					NOT USED		
C-21	13	XA		1951-1-5022-503	15942	CHASSIS,TEE ANGLE	EA	1
C-21	14	XDHZZ	5320-00-117-6886	MS20426AD5-9	96906	RIVET	EA	4
C-21	15	XA		1966-1-2091-1	15942	PLATE,SUPPORT	EA	2
C-21	16	XDDZZ	5305-00-054-5648	MS51957-14	96906	SCREW	EA	10
C-21	17	XDHZZ	5310-00-933-8118	MS35338-135	96906	WASHER	EA	24
C-21	18	XDHZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	44
C-21	19	XDDZZ		1951-1-4264-1	15942	COVER,CARD CAGE	EA	1
C-21	20	PAHDD	5865-01-066-3234	10-123614-1	28815	CCA,RCU INTERFACE (SEE FIG C-37)	EA	1
C-21	21	PAHDD		C5135457-1	57958	CCA,MEMORY (SEE FIG C-36)	EA	1
C-21	22	PAHDD	5865-01-066-1646	10-123594-1	28815	CCA,MEMORY I/O BUFFER (SEE FIG C-35)	EA	1
C-21	23	PAHDD	5811-01-102-9136	10-123624-2	28815	CCA,MEMORY ADDRESS (SEE FIG C-34)	EA	1
C-21	24	PAHDD	5865-01-066-1644	1951-1-4137-1	15942	TIME CONT CCA (SEE FIG C-33)	EA	1
C-21	25	PAHDD	5865-01-066-1647	10-123584-1	28815	SWEEP ADDRESS CCA (SEE FIG C-32)	EA	1
C-21	26	PAHDD	5865-01-248-7492	1951-1-4873-2	15942	CCA,CIRCUIT CLOCK (SEE FIG C-31)	EA	1
C-21	27	XDHZZ	5310-01-010-6538	FE-440	46384	NUT,SLF-LKG,CLINCH	EA	10
C-21	28	XDHZZ		D-791806	30885	SCREW,ERB	EA	52
C-21	29	XDHHH		1951-1-4021-1	15942	COVER,ACCESS BOTTOM	EA	1
C-21	30	XA		1951-1-4021-501	15942	COVER,ACCESS BOTTOM	EA	1

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-21	31	XDHZZ		MS20426AD2-5	96906	RIVET	EA	44
C-21	32	XDHZZ		16-119513-1	28815	SHIELDING GASKET,ELEC	EA	2
C-21	33	XDHZZ	5310-00-595-6761	MS15795-802	96906	WASHER	EA	52
C-21	34	XDHHH		1951-1-3297-1	15942	CABLE ASSY,SP PURP (SEE FIG C-30)	EA	1
C-21	35	XDHZZ	5310-00-208-3786	NAS671C4	80205	NUT	EA	20
C-21	36	XDHZZ	5305-00-225-6400	MS24693-C3	96906	SCREW	EA	28
C-21	37	XDHZZ	5330-01-033-0334	97-555CDC	30817	SHIELDING GASKET,ELEC	EA	1
C-21	38	XDHZZ	5340-00-759-6438	FE-832	46384	NUT,SLF-LKG,CLINCH	EA	4
C-21	39	XDHZZ	5305-00-054-6669	MS51957-44	96906	SCREW	EA	4
C-21	40	XDHZZ	3460-00-876-2922	HDH-4	94867	HOOK,HOLDDOWN	EA	2
C-21	41	XA		1951-1-5022-504	15942	CHASSIS,TEE ANGLE	EA	1
C-21	42	XDHHD		1951-1-5022-1	15942	CHASSIS,ELEC EQUIP	EA	1
C-21	43	XA		1951-1-5022-501	15942	CHASSIS,SHEET	EA	1
C-21	44	XA		1951-1-5022-505	15942	CHASSIS,SHEET	EA	1
C-21	45	XDHZZ		1951-1-3247-2	15942	BLOCK,SUPPORT	EA	1
C-21	46	XA		1951-1-5022-502	15942	CHASSIS,TEE ANGLE	EA	2
C-21	47	PAHDD	5865-01-066-1619	1951-1-4133-1	15942	ECA,IF AMPL (SEE FIG C-38)	EA	1
C-21	48	PAHDD	5865-01-066-1621	10-123525-1	28815	ELECTRONIC CMPNT ASSY, LOG AMPL (SEE FIG C-40)	EA	1
C-21	49	PAHDD	5865-01-071-1866	10-123495-1	28815	ECA,RF TEST GEN (SEE FIG C-42)	EA	1
C-21	50	PAHDD	5865-01-066-1620	1951-1-4128-1	15942	ELECTRONIC CMPNT ASSY, RF OSCILLATOR (SEE FIG C-44)	EA	1
C-21	51	PAHDD	5865-01-066-1617	10-123505-1	28815	ECA,FREQ CONV (SEE FIG C-46)	EA	1
C-21	52	PAHDD	5865-02-066-1616	10-123545-1	28815	ECA,FREQ DISCRIM (SEE FIG C-48)	EA	1
C-21	53	PAHDD	5865-01-066-7363	10-123555-1	28815	ECA,RCVR SWEEP (SEE FIG C-51)	EA	1
C-21	54	XDDDD		1951-1-4190-1	15942	PLATE ASSY, CONNECTOR (SEE FIG C-53)	EA	1
C-21	55	XDDZZ	5305-00-054-5650	MS51957-16	96906	SCREW	EA	14
C-21	56	PAHHH	5865-01-066-4353	1951-1-3067-1	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	57	PAHHH	5865-01-066-7515	1951-1-3067-2	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	58	PAHHH	5865-01-066-4352	1951-1-3067-3	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	59	PAHHH	5865-01-066-4333	1951-1-3067-4	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-21	60	PAHHH	5865-01-066-4351	1951-1-3067-5	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	61	PAHHH	5865-01-066-4350	1951-1-3067-6	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	62	PAHHH	5865-01-066-4349	1951-1-3067-7	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	63	PAHHH	5865-01-066-4332	1951-1-3067-8	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	64	PAHHH	5865-01-066-4348	1951-1-3067-9	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	65	PAHHH	5865-01-066-4347	1951-1-3067-10	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	66	PAHHH	5865-01-066-4331	1951-1-3067-11	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	67	PAHHH	5865-01-066-4346	1951-1-3067-12	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	68	PAHHH	5865-01-066-4345	1951-1-3067-13	15942	CABLE ASSY,RF (SEE FIG C-29)	EA	1
C-21	69	XDDZZ	5320-00-117-6010	MS20426AD2-3	96906	RIVET	EA	58
C-21	70	XDDDD		1951-1-4083-1	15942	PLATE,SIDE,CARD CAGE	EA	1
C-21	71	XA		1951-1-4083-501	15942	PLATE,SIDE	EA	1
C-21	72	XDDZZ		1951-1-3040-1	15942	PLATE,END,CARD CAGE	EA	2
C-21	73	XDDZZ	5999-01-054-0583	35-7B2-10-3	18915	HOLDER,ELECTRIC CARD	EA	14
C-21	74	XDDZZ	5320-00-534-0609	MS20470AD2-2	96906	RIVET	EA	28
C-21	75	XDDDD		1951-1-4083-2	15942	PLATE,SIDE,CARD CAGE	EA	1
C-21	76	XA		1951-1-4083-502	15942	PLATE,SIDE	EA	1
C-21	77	PADDD	5865-01-066-4355	1951-1-3136-1	15942	CABLE ASSY, RF (SEE FIG C-27)	EA	1
C-21	78	PADDD	5995-01-248-7461	1951-1-4207-1	15942	CABLE ASSY, RF (SEE FIG C-28)	EA	1
C-21	79	PADDD		1951-1-4207-2	15942	CABLE ASSY,RF (SEE FIG C-27)	EA	1
C-21	80	PADDD	5865-01-066-4354	1951-1-4207-3	15942	CABLE ASSY,RF (SEE FIG C-27)	EA	1
C-21	81	XDDDD		1951-1-4206-1	15942	WIRING HARNESS, BRANCHED (SEE FIG C-25)	EA	1
C-21	82	XDDDD		1951-1-3137-2	15942	SPECIAL PURPOSE CABLE ASSY (SEE FIG C-26)	EA	1
C-21	83	XDHZZ		1951-1-4195-1	15942	FRONT PANEL	EA	1
C-21	84	XDHZZ	5305-00-056-9961	MS24693-C4	96906	SCREW	EA	16
C-21	85	XDHZZ	5305-00-054-5644	MS51957-11	96906	SCREW	EA	2
C-21	86	XDHZZ		C5074128-3	57958	PLATE,IDENT	EA	1
C-21	87	XDDZZ	5305-01-097-7681	A145B2308LL	70318	SCREW,SLF-LKG	EA	16
C-21	88	XDHZZ		1966-1-3332-2	15942	LABEL,IND CONT	EA	1
C-21	89	XDHZZ	5340-01-103-0189	10350-SS-0832-7	06540	HANDLE,BOW	EA	2
C-21	90	XDHZZ	5305-00-889-2991	MS24693-C48	96906	SCREW	EA	4



*DENOTES HIDDEN PART

BDR-310
1951 1 4204 1

Figure C-22. Front End Electronic Components Assembly

(1) ILLUSTRATION FIG NO	(1) ILLUSTRATION ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 3101 - ELECTRONIC COMPONENTS ASSY, FRONT END 1951-1-4204-1		
C-22	1	XDDDD		1951-1-4717-1	15942	PLATE,BASE ASSY,FRONT END	EA	1
C-22	2	XA		1951-1-4717-501	15942	PLATE	EA	1
C-22	3	XDHZZ	5325-00-831-3400	5S5-13	71286	STUD,TURNLOCK FASTENER	EA	6
C-22	4	XDHZZ		5S5-1	71286	STUD,TURNLOCK FASTENER	EA	6
C-22	5	XDDZZ	5999-00-688-7700	01-0101-0424	12881	WIRE MESH,KNITTED	EA	2
C-22	6	XDDDD		12-116739-2	28815	COVER,FRONT END	EA	1
C-22	7	XA		12-116739-502	28815	COVER	EA	1
C-22	8	XDDDD		1951-1-4080-1	15942	CHASSIS,ELEC EQUIP	EA	1
C-22	9	XA		1951-1-4080-501	15942	CHASSIS	EA	1
C-22	10	XDDZZ		UL-256-1	66034	NUT,SLF-LKG,CLINCH	EA	12
C-22	11	XDDZZ	5935-00-079-8636	DE51224-1	71468	RETAINER,SLIDING	EA	1
C-22	12	XDDZZ	5307-01-046-1052	9723-SS-0256-7	06540	POST,ELEC-MECH,EQUIP	EA	19
C-22	13	XDDZZ	5305-01-023-9049	NAS1189E02P4B	80205	SCREW	EA	46
C-22	14	XDDZZ	5305-00-054-5649	MS51957-15	96906	SCREW	EA	4
C-22	15	PADZZ	5935-00-466-3394	M24308/4-1	81349	CONNECTOR	EA	1
C-22	16	PADZZ	5915-01-045-8126	51-712-003	33095	FILTER,RFI	EA	20
C-22	17	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	15
C-22	18	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	23
C-22	19	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	23
C-22	20	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	36
C-22	21	XDDZZ	5310-00-928-2690	MS33538-134	95906	WASHER	EA	12
C-22	22	XDDZZ	5310-00-011-6123	MS33538-69	96906	WASHER	EA	33
C-22	23	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	7
C-22	24	XDDZZ		RC 1-FNGRES1/16G	77969	GROMMET	EA	1
C-22	25	PADZZ	5935-01-030-3217	2054-0000-02	16179	CONNECTOR,RCPT,ELEC	EA	1
C-22	26	PADDD	5865-01-249-0377	10-118024-4	28815	CIRCUIT CARD ASSY, RF PRESELECT (SEE FIG C-23)	EA	1
C-22	27	PADDD	5865-01-106-0928	10-123634-2	28815	CIRCUIT CARD ASSY, LOCAL OSCILLATOR (SEE FIG C-24)	EA	1
C-22	28	PADZZ	5865-01-248-7490	1951-1-4705-1	15942	CIRCUIT CARD ASSY, IF MIXER	EA	1

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-22	29	XA	5910-01-093-9498	CMR03E620J0YP	81349	CAPACITOR	EA	1
C-22	30	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2
C-22	31	XDDZZ	5340-00-367-3631	9724-SS-0256-7	06540	POST,ELEC-MECH	EA	4
C-22	32	XDDZZ	5305-00-054-5637	MS51957-3	96906	SCREW	EA	10

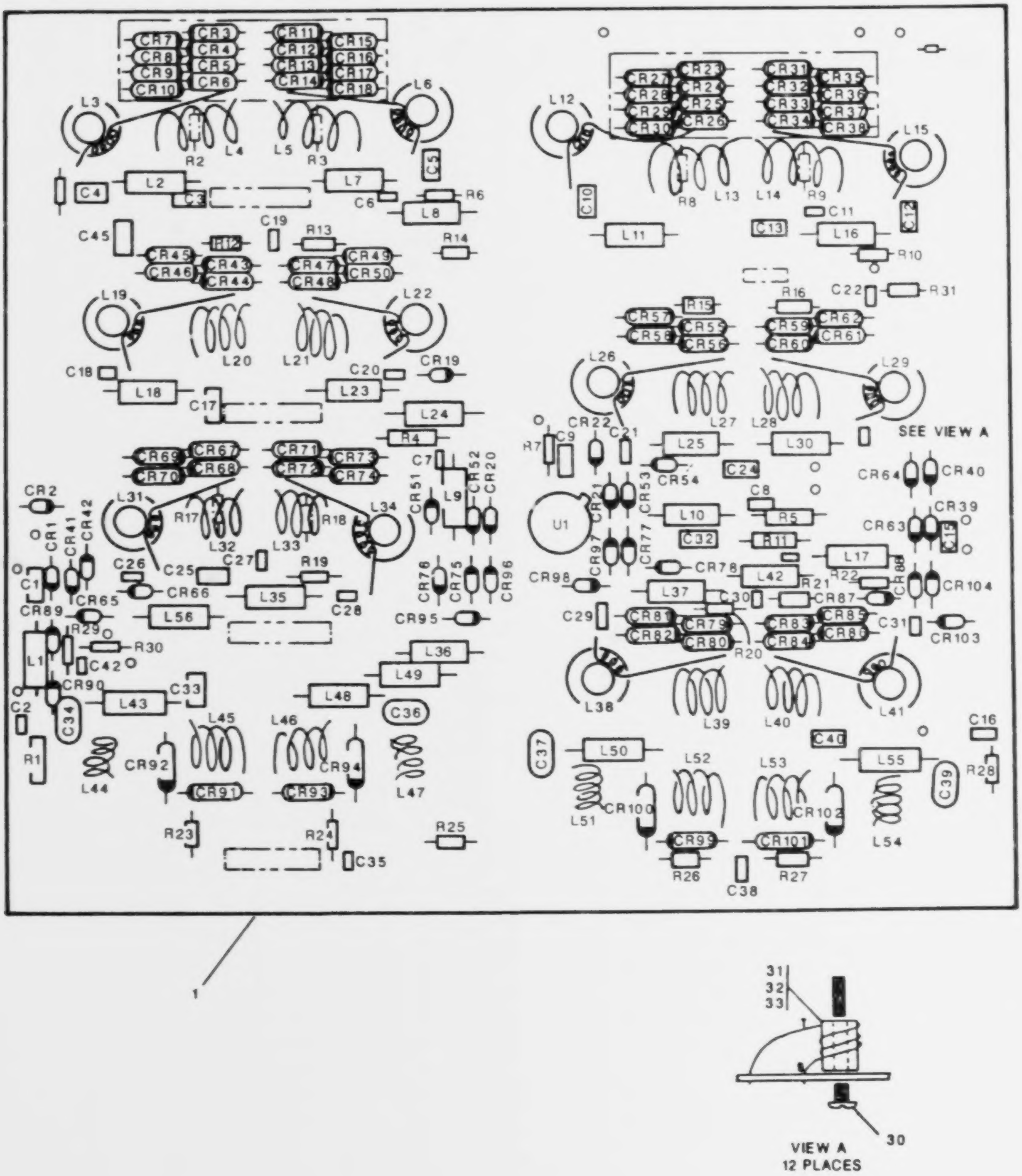


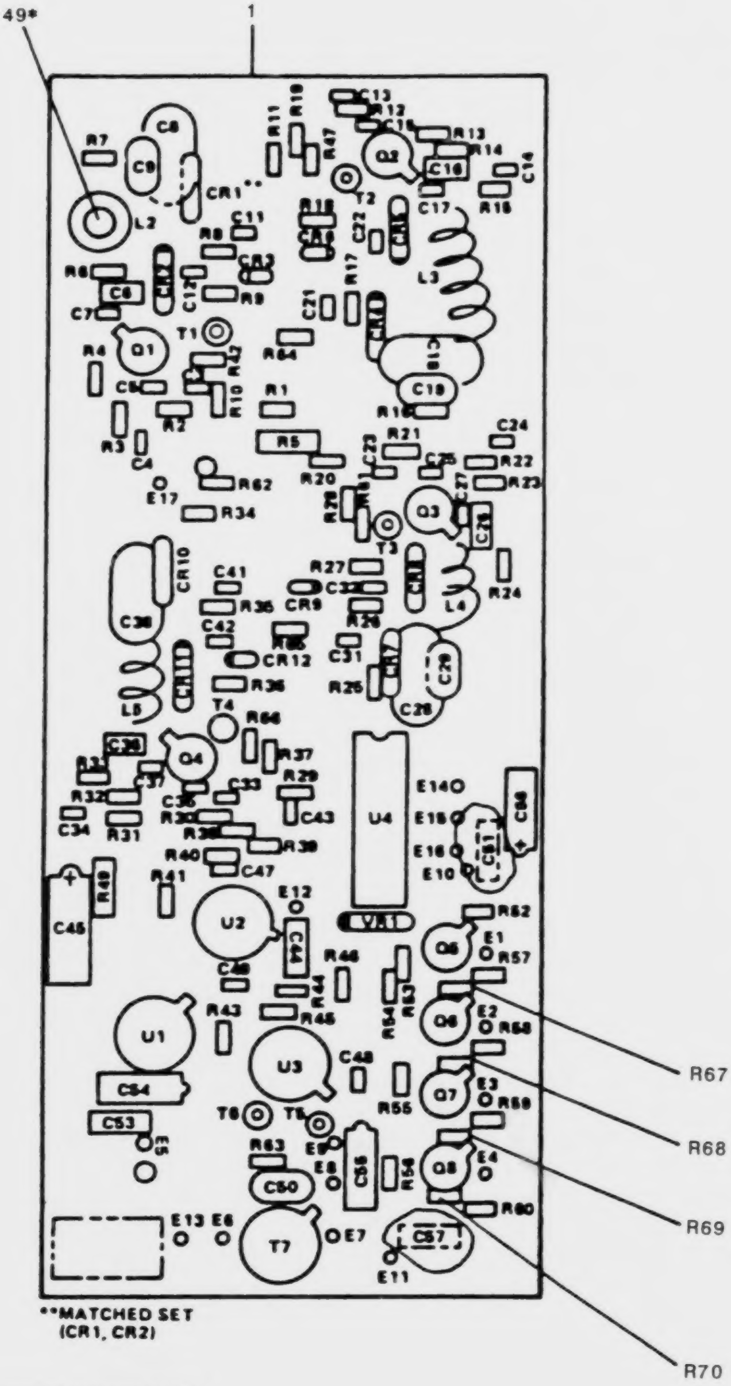
Figure C-23. RF Preselect Circuit Card Assembly (A1)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	6	CR44	7	CR86	7	C25	2	L26	12	R13	26
CR2	6	CR45	7	CR87	6	C26	4	L27	13	R14	24
CR3	8	CR46	7	CR88	6	C27	4	L28	14	R15	26
CR4	8	CR47	7	CR89	6	C28	4	L29	12	R16	26
CR5	8	CR48	7	CR90	6	C29	4	L30	11	R17	26
CR6	8	CR49	7	CR91	7	C30	4	L31	15	R18	26
CR7	8	CR50	7	CR92	7	C31	4	L32	16	R19	24
CR8	8	CR51	6	CR93	7	C32	2	L33	17	R20	26
CR9	8	CR52	6	CR94	7	C33	2	L34	15	R21	26
CR10	8	CR53	6	CR95	6	C34	5	L35	31	R22	25
CR11	8	CR54	6	CR96	6	C35	4	L36	31	R23	26
CR12	8	CR55	7	CR97	6	C36	5	L37	31	R24	26
CR13	8	CR54	7	CR98	6	C37	5	L38	15	R25	24
CR14	8	CR56	7	CR99	7	C38	4	L39	16	R26	26
CR15	8	CR57	7	CR100	7	C39	5	L40	17	R27	26
CR16	8	CR58	7	CR101	7	C40	2	L41	15	R28	25
CR17	8	CR59	7	CR102	7	C42	4	L42	31	R29	25
CR18	8	CR60	7	CR103	6	C45	3	L43	18	R30	23
CR19	6	CR61	7	CR104	6	L1	9	L44	32	R31	25
CR20	6	CR62	7	C1	2	L2	9	L45	28	U1	29
CR21	6	CR63	6	C2	4	L3	10	L46	27		
CR22	6	CR64	6	C3	3	L4	19	L47	33		
CR23	8	CR65	6	C4	2	L5	20	L48	18		
CR24	8	CR66	6	C5	2	L6	10	L49	18		
CR25	8	CR67	7	C6	4	L7	9	L50	18		
CR26	8	CR68	7	C7	4	L8	9	L51	32		
CR27	8	CR69	7	C8	4	L9	9	L52	28		
CR28	8	CR70	7	C9	3	L10	9	L53	27		
CR29	8	CR71	7	C10	2	L11	9	L54	33		
CR30	8	CR72	7	C11	4	L12	10	L55	18		
CR31	8	CR73	7	C12	2	L13	19	L56	31		
CR32	8	CR74	7	C13	3	L14	20	R1	21		
CR33	8	CR75	6	C14	4	L15	10	R2	26		
CR34	8	CR76	6	C15	2	L16	9	R3	26		
CR35	8	CR77	6	C16	4	L17	9	R4	21		
CR36	8	CR78	6	C17	3	L18	11	R5	21		
CR37	8	CR79	7	C18	4	L19	12	R6	24		
CR38	8	CR80	7	C19	4	L20	13	R7	22		
CR39	6	CR81	7	C20	4	L21	14	R8	26		
CR40	6	CR82	7	C21	4	L22	12	R9	26		
CR41	6	CR83	7	C22	4	L23	11	R10	25		
CR42	6	CR84	7	C23	4	L24	11	R11	21		
CR43	7	CR85	7	C24	3	L25	11	R12	26		

Figure C-23. RF Preselect Circuit Card Assembly (A1)
(Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - RF PRESELECT CIRCUIT CARD ASSY (A1) 10-118024-4		
C-23	1	XA		12-118023-1	28815	PRINTED WIRING BD	EA	1
C-23	2	PADZZ	5910-01-010-6473	M39014/01-1495	81349	CAPACITOR	EA	10
C-23	3	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	6
C-23	4	PADZZ	5910-01-042-2367	8111-100X7R0681K	72982	CAPACITOR	EA	22
C-23	5	PADZZ	5910-01-089-8735	CMR03F111J0YP	81349	CAPACITOR	EA	4
C-23	6	PADZZ	5961-01-065-7579	TX-3188	50434	SEMICONDUCTOR DEVICE,DIODE	EA	32
C-23	7	PADZZ		DS1750CBURNEDIN	28815	SEMICONDUCTOR DEVICE,DIODE	EA	40
C-23	8	PADZZ	5961-01-065-6731	16-124240-2	28815	SEMICONDUCTOR DEVICE,DIODE	EA	8
C-23	9	PADZZ	5950-01-187-8035	M39010/3-A390KP	81349	COIL,RF	EA	9
C-23	10	PADZZ	5950-01-064-6337	12-123966-1	28815	COIL,RF	EA	4
C-23	11	PADZZ	5950-01-120-5036	M39010/2-A100KP	81349	COIL,RF	EA	5
C-23	12	PADZZ	5950-01-065-4293	12-123966-2	28815	COIL,RF	EA	4
C-23	13	PADZZ	5950-01-064-9983	12-123959-2	28815	COIL,RF	EA	2
C-23	14	PADZZ	5950-01-068-0867	12-123960-2	28815	COIL,RF	EA	2
C-23	15	PADZZ	5950-01-066-3593	12-123966-3	28815	COIL,RF	EA	4
C-23	16	PADZZ	5950-01-064-6338	12-123959-3	28815	COIL,RF	EA	2
C-23	17	PADZZ	5950-01-064-6339	12-123960-3	28815	COIL,RF	EA	2
C-23	18	PADZZ	5950-01-082-6838	M39010/2-A1R2KP	81349	COIL,RF	EA	5
C-23	19	PADZZ	5950-01-103-7799	12-123-959-6	28815	COIL,RF	EA	2
C-23	20	PADZZ	5950-01-103-7800	12-123-960-9	28815	COIL,RF	EA	2
C-23	21	PADZZ	5905-00-119-8855	RCR07G112JP	81349	RESISTOR	EA	4
C-23	22	PADZZ	5905-00-028-9379	RCR05G100JP	81349	RESISTOR	EA	1
C-23	23	PADZZ	5905-00-028-9523	RCR05G510JP	81349	RESISTOR	EA	1
C-23	24	PADZZ	5905-00-568-7228	RCR05G102JP	81349	RESISTOR	EA	4
C-23	25	PADZZ	5905-00-568-7472	RCR05G202JP	81349	RESISTOR	EA	5
C-23	26	PADZZ	5905-00-568-7712	RCR05G103JP	81349	RESISTOR	EA	16
C-23	27	PADZZ	5950-01-064-6342	12-123959-5	28815	COIL,RF	EA	2
C-23	28	PADZZ	5950-01-064-6341	12-123960-7	28815	COIL,RF	EA	2
C-23	29	PADZZ		AH-5451	17450	AMPLIFIER,RF	EA	1
C-23	30	XDDZZ	5305-00-143-3305	MS18212-41	96906	SCREW	EA	12
C-23	31	PADZZ	5950-01-064-6340	M39010/2-A3R3KP	81349	COIL,RF	EA	5
C-23	32	PADZZ	5950-01-065-4296	12-123959-4	28815	COIL,RF	EA	2
C-23	33	PADZZ	5950-01-065-4294	12-123960-4	28815	COIL,RF	EA	2



**MATCHED SET
(CR1, CR2)

*DENOTES HIDDEN PART

Figure C-24. Local Oscillator Circuit Card Assembly
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	20	C37	2	R15	32	R61	31				
CR2	20	C39	7	R16	33	R62	27				
CR3	19	C41	2	R17	33	R63	32				
CR4	18	C42	2	R18	32	R64	27				
CR5	18	C43	2	R19	34	R65	27				
CR6	19	C44	5	R20	27	R66	31				
CR7	18	C45	12	R21	28	R67	33				
CR8	18	C47	2	R22	30	R68	41				
CR9	19	C48	2	R23	31	R69	41				
CR10	22	C49	2	R24	32	R70	41				
CR11	22	C50	11	R25	33	T1	43				
CR12	19	C51	3	R26	33	T2	43				
C3	2	C53	5	R27	32	T3	44				
C4	2	C54	13	R28	34	T4	42				
C5	2	C55	13	R29	27	T5	45				
C6	4	C56	13	R30	28	T6	45				
C7	2	C57	3	R31	30	T7	46				
C8	10	L2	14	R32	31	U1	23				
C9	9	L3	15	R33	32	U2	24				
C11	2	L4	16	R34	33	U3	24				
C12	2	L5	17	R35	33	U4	25				
C13	2	Q1	47	R36	32	VR1	21				
C14	2	Q2	47	R37	34						
C15	2	Q3	47	R38	34						
C16	4	Q4	47	R39	35						
C17	2	Q5	48	R40	36						
C18	8	Q6	48	R41	35						
C19	10	Q7	48	R42	31						
C21	2	Q8	48	R43	26						
C22	2	R1	27	R44	39						
C23	2	R2	28	R45	26						
C24	2	R3	30	R46	27						
C25	2	R4	31	R47	31						
C26	4	R5	40	R49	41						
C27	2	R6	32	R52	37						
C28	6	R7	33	R53	29						
C29	10	R8	33	R54	29						
C31	2	R9	32	R55	29						
C32	2	R10	34	R56	29						
C33	2	R11	27	R57	38						
C34	2	R12	28	R58	38						
C35	2	R13	30	R59	38						
C36	4	R14	31	R60	38						

Figure C-24. Local Oscillator Circuit Card Assembly
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - LOCAL OSCILLATOR CIRCUIT CARD ASSY 10-123634-2		
C-24	1	XA		12-123633-1	28815	PRINTED WIRING BOARD	EA	1
C-24	2	PADZZ		RPE110X7R681K100V	18796	CAPACITOR	EA	28
C-24	3	PADZZ	5910-00-010-8717	M39014/01-1513	81349	CAPACITOR	EA	2
C-24	4	PADZZ	5910-01-010-6473	M39014/01-1495	81349	CAPACITOR	EA	4
C-24	5	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	2
C-24	6	PADZZ	5910-01-044-5616	CMR05F161J0DP	81349	CAPACITOR	EA	1
C-24		XC		21-129247-1 (selected at test from the following:)	28815	KIT,SPARE PARTS	EA	1
C-24	7	PADZZ	5910-01-043-6899	CMR05F121J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ	5910-01-031-0447	CMR05F331J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ	5910-01-052-8905	CMR06F561J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ		CMR06F821J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ	5910-00-519-2721	CMR06F102J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ	5910-01-030-8270	CMR06F122J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ	5910-01-029-8907	CMR06F471J0DP	81349	CAPACITOR	EA	1
C-24	7	PADZZ	5910-01-044-8563	CMR05F221J0DP	81349	CAPACITOR	EA	1
C-24	8	PADZZ	5910-01-043-5772	CMR05F271J0DP	81349	CAPACITOR	EA	1
C-24		XC		21-129248-1 (selected at test from the following:)	28815	KIT,SPARE PARTS	EA	1
C-24	9	PADZZ	5910-01-038-7907	CMR03C5R0D0CP	81349	CAPACITOR	EA	1
C-24	9	PADZZ		CMR03C7R0D0CP	81349	CAPACITOR	EA	1
C-24	9	PADZZ	5910-01-029-0728	CMR03C100D0CP	81349	CAPACITOR	EA	1
C-24	9	PADZZ		CMR03C150D0CP	81349	CAPACITOR	EA	1
C-24		XC		21-129246-1 (selected at test from the following)	28815	KIT,SPARE PARTS	EA	3
C-24	10	PADZZ		CMR03E430J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-038-7898	CMR03E470J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-206-0485	CMR03E510J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03E560J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03E620J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-024-9121	CMR03E680J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-206-9767	CMR03E750J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03E820J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-029-4702	CMR03F910J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-038-7896	CMR03F101J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03F111J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03F121J0CP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03F131J0AP	81349	CAPACITOR	EA	1
C-24	10	PADZZ	5910-01-273-7747	CMR03F151J0AP	81349	CAPACITOR	EA	1
C-24	10	PADZZ		CMR03F161J0AP	81349	CAPACITOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-24	10	PADZZ		CMR03F181JOAP	81349	CAPACITOR	EA	1
C-24	11	PADZZ		CMR05R0D0CP	81349	CAPACITOR	EA	1
C-24	12	PADZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-24	13	PADZZ	5910-01-254-0361	M39003/01-2523	81349	CAPACITOR	EA	3
C-24	14	PADZZ	5950-01-066-0923	12-123966-5	28815	COIL,RF	EA	1
C-24	15	PADZZ	5950-01-064-6343	12-123960-6	28815	COIL,RF	EA	1
C-24	16	PADZZ	5950-01-064-6344	12-123960-5	28815	COIL,RF	EA	1
C-24	17	PADZZ	5950-01-064-6345	12-123960-8	28815	COIL,RF	EA	1
C-24	18	PADZZ	5961-01-159-2481	68-108294-1	28815	SEMICONDUCTOR DEVICE,DIODE	EA	4
C-24	19	PADZZ	5961-01-065-7579	TX-3188	50434	SEMICONDUCTOR DEVICE,DIODE	EA	4
C-24	20	PADZZ	5961-01-165-7903	16-124240-1	28815	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-24	21	PADZZ	5961-01-024-2145	JANTX1N4625	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-24	22	PADZZ	5961-00-163-7157	DS1742C	18518	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-24	23	PADZZ	5962-01-065-0190	SG7182T/883B	34333	MICROCIRCUIT, LINEAR	EA	1
C-24	24	PADZZ		AH-5451	17540	AMPLIFIER,RF	EA	2
C-24	25	PADZZ	5962-00-430-2737	M38510/01004BEB	81349	MICROCIRCUIT,DIGITAL	EA	1
C-24	26	PADZZ	5905-00-483-0408	RCR05G111JP	81349	RESISTOR	EA	2
C-24	27	PADZZ	5905-00-028-9379	RCR05G100JP	81349	RESISTOR	EA	8
C-24	28	PADZZ	5905-00-125-0883	RCR05G132JP	81349	RESISTOR	EA	4
C-24	29	PADZZ	5905-00-568-7684	RCR05G682JP	81349	RESISTOR	EA	4
C-24	30	PADZZ	5905-00-125-0876	RCR05G621JP	81349	RESISTOR	EA	4
C-24	31	PADZZ	5905-00-125-0704	RCR05G331JP	81349	RESISTOR	EA	8
C-24	32	PADZZ	5905-00-028-9523	RCR05G510JP	81349	RESISTOR	EA	9
C-24	33	PADZZ	5905-00-568-7712	RCR05G103JP	81349	RESISTOR	EA	12
C-24	34	PADZZ	5905-00-568-7497	RCR05G222JP	81349	RESISTOR	EA	5
C-24	35	PADZZ	5905-00-125-0844	RCR05G431JP	81349	RESISTOR	EA	2
C-24	36	PADZZ	5905-00-232-3114	RCR05G110JP	81349	RESISTOR	EA	1
C-24	37	PADZZ	5905-00-568-7504	RCR05G302JP	81349	RESISTOR	EA	1
C-24	38	PADZZ	5905-00-568-7689	RCR05G752JP	81349	RESISTOR	EA	4
C-24	39	PADZZ		RCR05G620JP	81349	RESISTOR	EA	1
C-24	40	PADZZ	5905-00-028-9379	RCR05G100JP	81349	RESISTOR	EA	1
C-24	41	PADZZ	5905-00-568-7712	RCR05G103JP	81349	RESISTOR	EA	1
C-24	42	PADZZ	5950-01-064-6315	12-123967-3	28815	TRANSFORMER,RF	EA	1
C-24	43	PADZZ	5950-01-065-4288	12-123967-1	28815	TRANSFORMER,RF	EA	2
C-24	44	PADZZ	5950-01-064-6314	12-123967-2	28815	TRANSFORMER,RF	EA	1
C-24	45	PADZZ	5950-01-064-6323	12-123968-1	28815	TRANSFORMER,RF	EA	2
C-24	46	PADZZ	5821-01-073-5999	TO-HJ-302V	32252	DIVIDER,PWR	EA	1
C-24	47	PADZZ	5961-01-028-1077	17-123787-22	81349	TRANSISTOR	EA	4
C-24	48	PADZZ	5961-00-022-5666	JANTX2N2907A	81349	TRANSISTOR	EA	4
C-24	49	XDDZZ	5305-00-143-3305	MS18212-41	96906	SCREW	EA	1

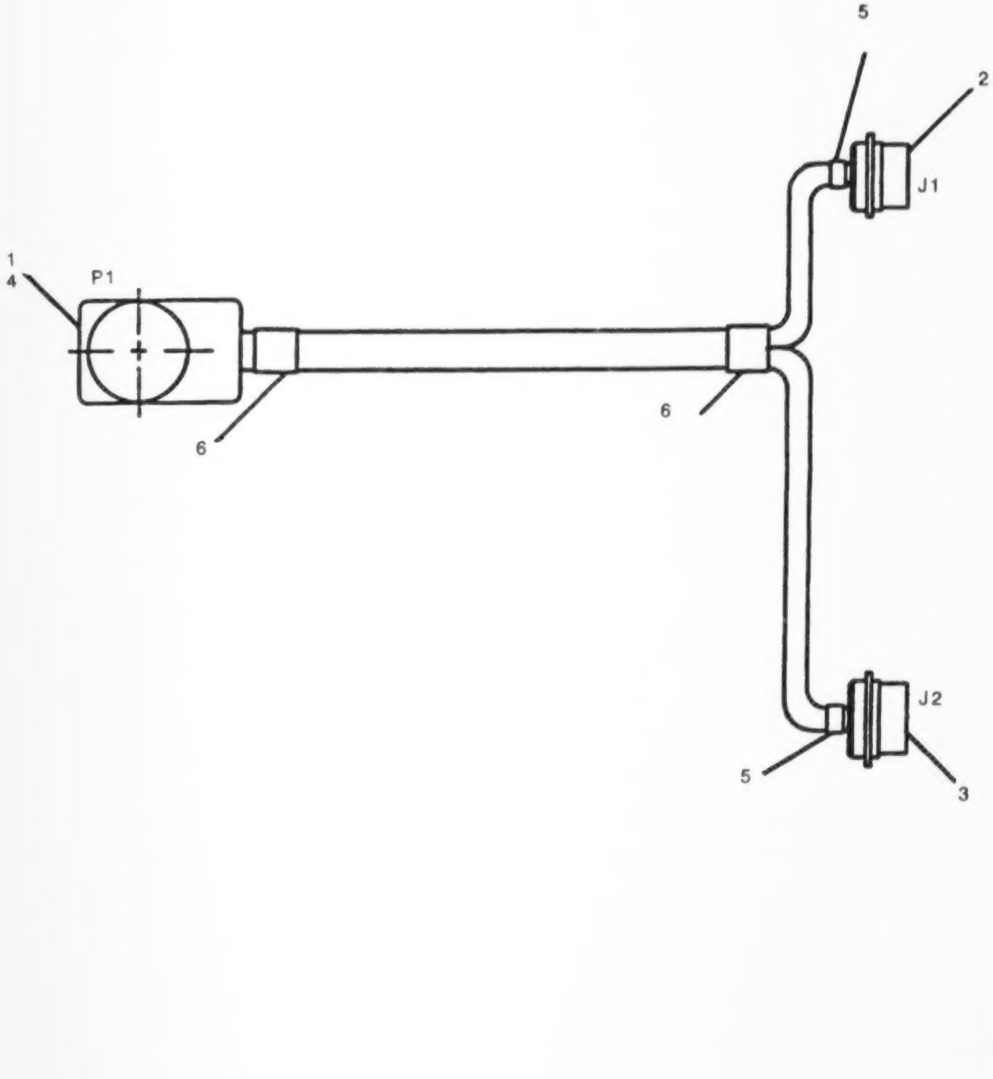
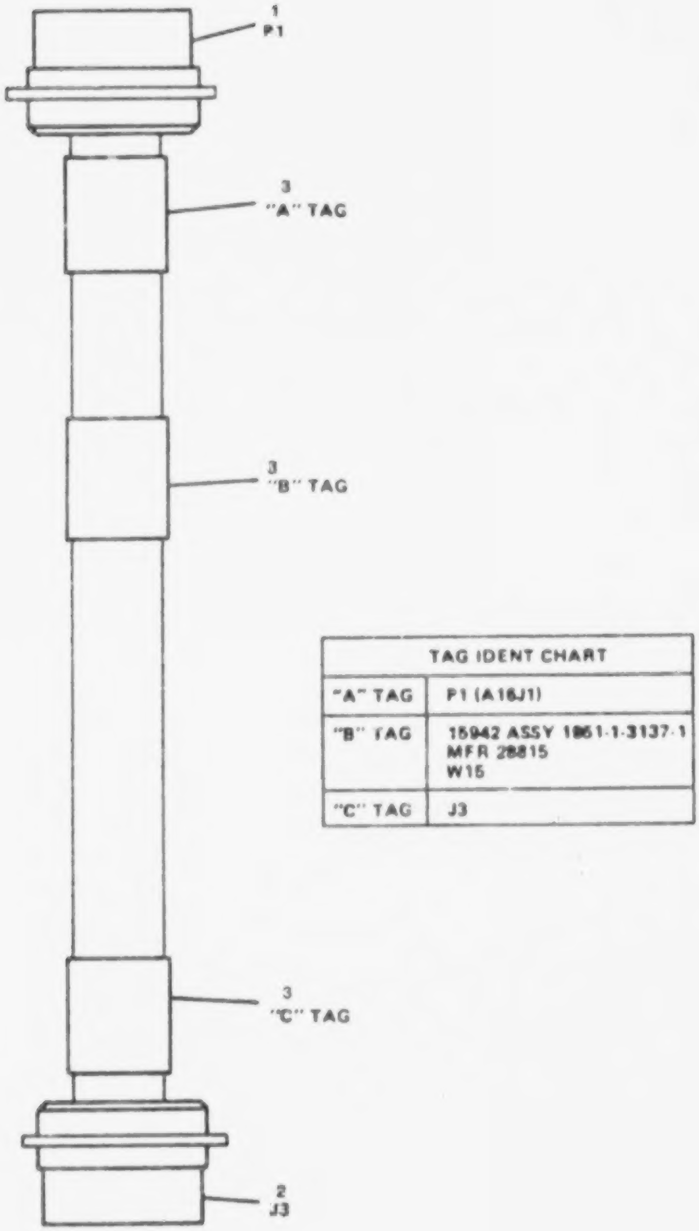


Figure C-25. Branched Wiring Harness

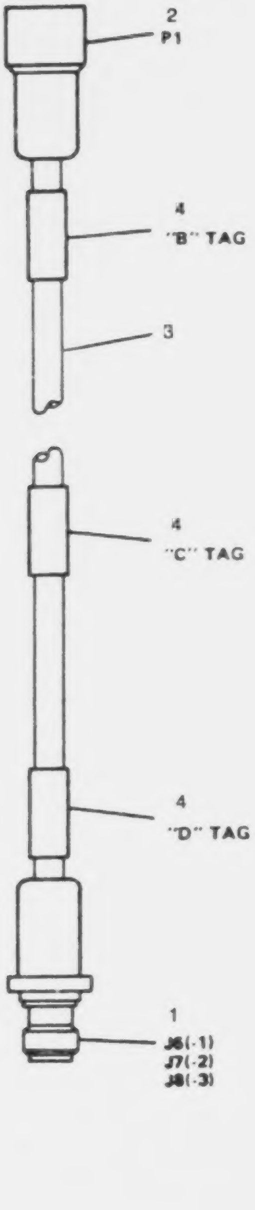
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 3102 - BRANCHED WIRING HARNESS 1951-1-4206-1		
C-25	1	PAHZZ		1/0-100-00000	31413	CONNECTOR	EA	1
C-25	2	PAHZZ	5935-01-024-1895	MS27508E12F35S	96906	CONNECTOR	EA	1
C-25	3	PAHZZ	5935-01-056-3578	MS27508E14F35S	96906	CONNECTOR	EA	1
C-25	4	PADZZ	5999-01-042-7771	001-6500-513	31413	CONTACT,ELEC	EA	18
C-25	5	XDHZZ		TMS1/4-9	06090	BAND,MARKER	EA	2
C-25	6	XDHZZ		TMS1/2-9	06090	BAND,MARKER	EA	2



TAG IDENT CHART	
"A" TAG	P1 (A16J1)
"B" TAG	15942 ASSY 1861-1-3137-1 MFR 28815 W15
"C" TAG	J3

Figure C-26. Special Purpose Cable Assembly (W15)

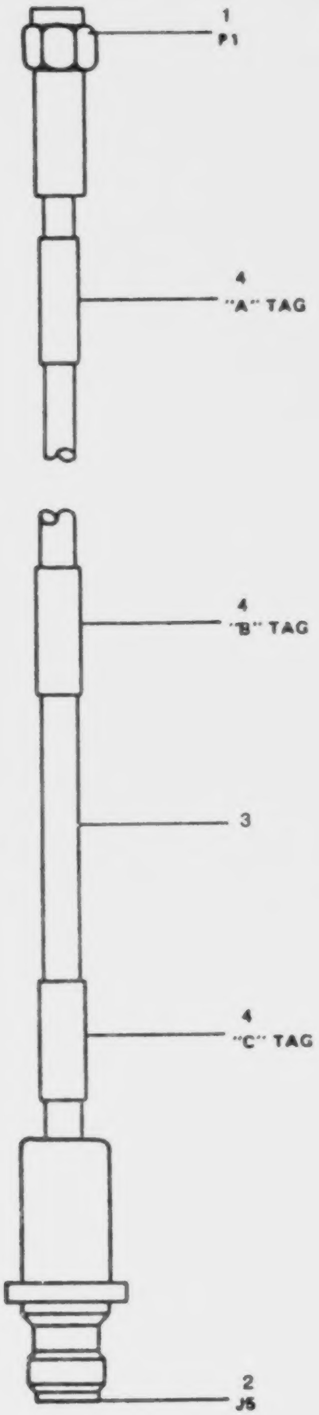
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 3103 - SPECIAL PURPOSE CABLE ASSY (W15) 1951-1-3137-1		
C-26	1	PAHZZ	5935-01-064-5698	MS27484E14F18S	96906	CONNECTOR	EA	11
C-26	2	PAHZZ	5935-01-082-4457	MS27508E14F18P	96906	CONNECTOR	EA	1
C-26	3	XDHZZ		TMS3/8-1.75-9	06090	BAND, MARKER	EA	3



TAG IDENT CHART	
"B" TAG	P1 (J3A16)
	P1 (J4A16)
	P1 (J5A16)
"C" TAG	15942 ASSY 1951-1-4207-1 MFR 28815 W16
	15942 ASSY 1951-1-4207-2 MFR 28815 W17
	15942 ASSY 1951-1-4207-3 MFR 28815 W18
"D" TAG	J6
	J7
	J8

Figure C-27. RF Cable Assembly (W16)

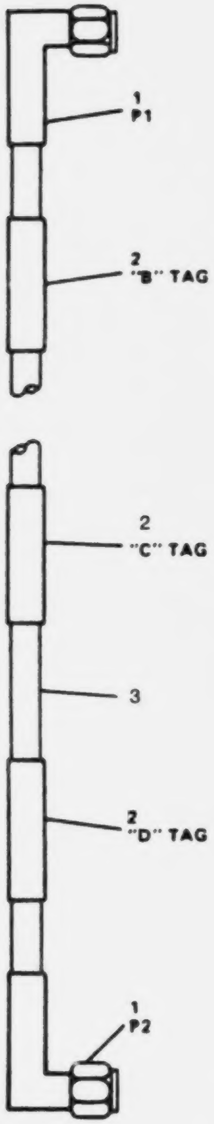
(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 3104 - RF CABLE ASSY (W16) 1951-1-4207-1		
C-27	1	PAHZZ	5935-01-025-9157	M39012/29-0011	81349	CONNECTOR	EA	1
C-27	2	PAHZZ	5935-01-043-5841	M39012/26-0101	81349	CONNECTOR	EA	1
C-27	3	XDHZZ	6145-00-681-7849	M17/84-RG 223	81349	CABLE,RF	EA	1
C-27	4	XDHZZ		TMS1/4-9	06090	BAND,MARKER	EA	3



TAG IDENT CHART	
"A" TAG	P1 (A8J4)
"B" TAG	15942 ASSY 1851-1-3136-1 MFR 28815 W19
"C" TAG	J5

Figure C-28. RF Cable Assembly (W19)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 3105 - RF CABLE ASSY (W19) 1951-1-3136-1		
C-28	1	PAHZZ	5935-00-470-2813	M39012/55-3009	81349	CONNECTOR	EA	1
C-28	2	PAHZZ	5935-01-025-9157	M39012/29-0011	81349	CONNECTOR	EA	1
C-28	3	XDHZZ	6145-00-681-7849	M17/84-RG223	81349	CABLE,RF	EA	1
C-28	4	XDHZZ		TMS1/4-9	06090	BAND,MARKER	EA	3

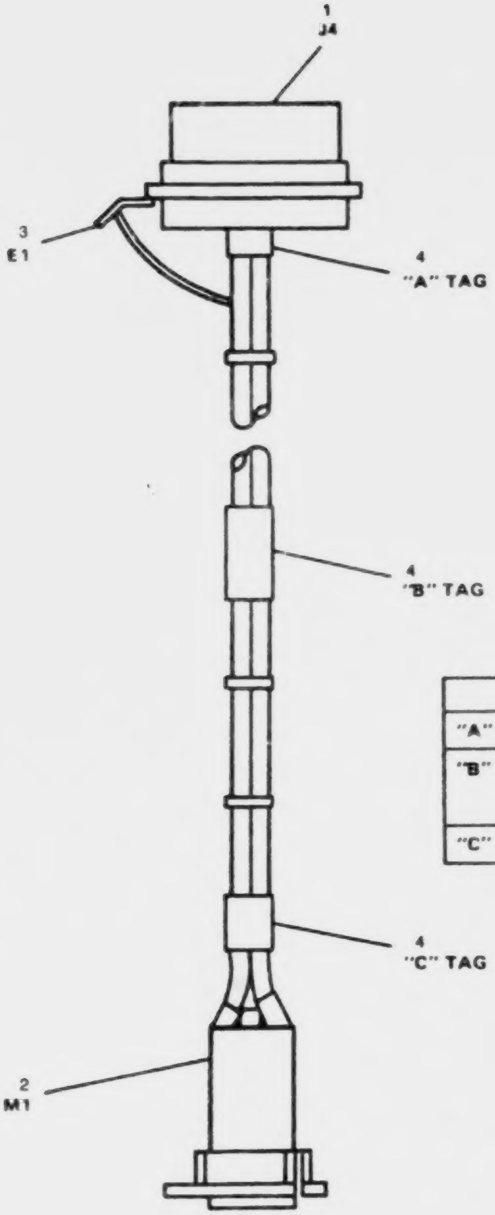


TAG IDENT CHART

"B" TAG	"C" TAG	"D" TAG
P1 (J1A8)	15942 ASSY 1951-1-3067-1 MFR 28815 W1	P2 (A11J2)
P1 (J3A8)	15942 ASSY 1951-1-3067-2 MFR 28815 W2	P2 (A9J2)
P1 (J5A8)	15942 ASSY 1951-1-3067-3 MFR 28815 W3	P2 (A8J9)
P1 (J6A8)	15942 ASSY 1951-1-3067-4 MFR 28815 W4	P2 (A14J2)
P1 (J8A8)	15942 ASSY 1951-1-3067-5 MFR 28815 W5	P2 (A13J2)
P1 (J3A9)	15942 ASSY 1951-1-3067-6 MFR 28815 W6	P2 (A10J3)
P1 (J2A12)	15942 ASSY 1951-1-3067-7 MFR 28815 W7	P2 (A13J4)
P1 (J3A12)	15942 ASSY 1951-1-3067-8 MFR 28815 W8	P2 (A13J3)
P1 (J6A13)	15942 ASSY 1951-1-3067-9 MFR 28815 W9	P2 (A15J2)
P1 (J3A14)	15942 ASSY 1951-1-3067-10 MFR 28815 W10	P2 (A15J2)
P1 (J4A14)	15942 ASSY 1951-1-3067-11 MFR 28815 W11	P2 (A15J3)
P1 (J5A14)	15942 ASSY 1951-1-3067-12 MFR 28815 W12	P2 (A14J7)
P1 (J6A14)	15942 ASSY 1951-1-3067-13 MFR 28815 W13	P2 (A15J4)

Figure C-29. RF Cable Assembly (W1 - W13)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - RF CABLE ASSY W1 - W13 1951-1-3067-1		
C-29	1	PAHZZ	5935-01-081-9988	2007-5061-02	26805	CONNECTOR	EA	2
C-29	2	XDHZZ		TMS1/4-9	06090	BAND,MARKER	EA	3
C-29	3	XDHZZ		4500	12515	CABLE,RF	EA	1



TAG IDENT CHART	
"A" TAG	J4
"B" TAG	15942 ASSY 1951-1-3297-1 MFR 28815 W20
"C" TAG	M1

Figure C-30. Special Purpose Cable Assembly (W20)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - SPECIAL PURPOSE CABLE ASSY (W20) 1951-1-3297-1		
C-30	1	PAHZZ	5935-01-056-3253	MS27508E16F8P	96906	CONNECTOR	EA	1
C-30	2	PAHZZ	6645-00-255-1371	MS17322-10	96906	METER,TIME TOTALIZER	EA	1
C-30	3	XDHZZ	5940-00-682-2477	MS77068-1	96906	TERMINAL,LUG	EA	1
C-30	4	XDHZZ		TMS1/4-9	06090	BAND,MARKER	EA	3

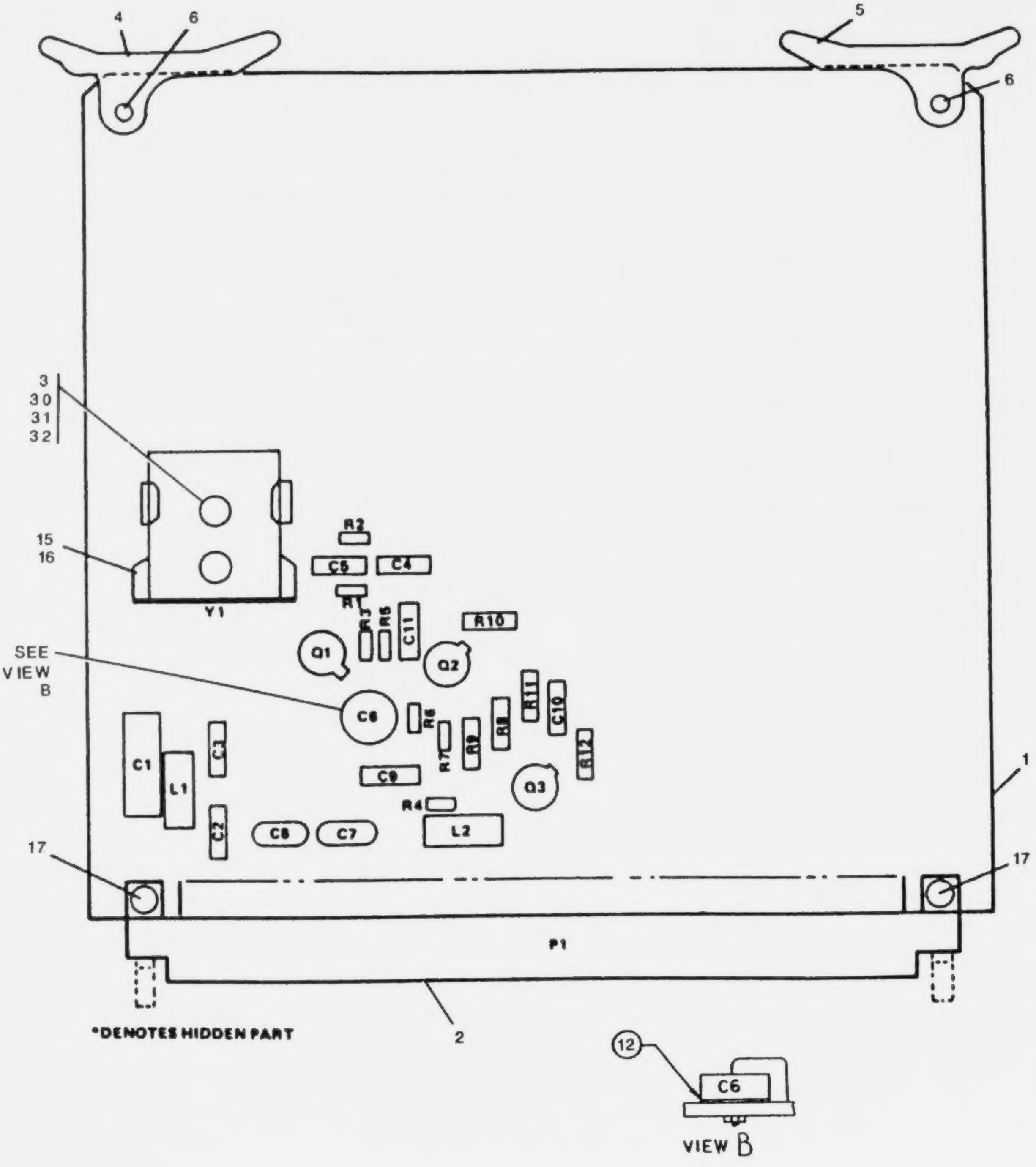


Figure C-31. Circuit Clock Circuit Card Assembly (A1)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	7										
C2	8										
C3	8										
C4	8										
C5	8										
C6	11										
C7	9										
C8	10										
C9	8										
C10	8										
C11	8										
L1	13										
L2	14										
Q1	27										
Q2	28										
Q3	29										
R1	18										
R2	19										
R3	20										
R4	21										
R5	22										
R6	23										
R7	21										
R8	24										
R9	24										
R10	25										
R11	26										
R12	25										
Y1	16										

Figure C-31. Circuit Clock Circuit Card Assembly (A1)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - CIRCUIT CLOCK 3125 CIRCUIT CARD ASSY (A1) 1951-1-4873-2		
C-31	1	XA		1951-1-4872-1	15942	PRINTED WIRING BOARD	EA	1
C-31	2	XDHZZ	5935-01-065-4186	M1001-00844-AA	31413	CONNECTOR	EA	1
C-31	3	XDDZZ		2-56x1/4BHD	70518	SCREW	EA	2
C-31	4	XDDZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR, ELECTRIC CARD	EA	1
C-31	5	XDDZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR, ELECTRIC CARD	EA	1
C-31	6	XDDZZ	5999-01-068-9564	14009-1P4	91506	PIN,SPRING	EA	2
C-31	7	PADZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-31	8	PADZZ	5910-00-010-8717	M39014/01-1513	81349	CAPACITOR	EA	7
C-31	9	PADZZ	5910-01-043-8882	CMR03E300JOYP	81349	CAPACITOR	EA	1
C-31	10	PADZZ		CMR03F151JOYP	81349	CAPACITOR	EA	1
C-31	11	PADZZ	5910-00-170-9557	8052	81349	CAPACITOR	EA	1
C-31	12	XDDZZ	5970-01-030-4263	2652	83330	WASHER,FLAT	EA	1
C-31	13	PADZZ	5950-01-064-6335	M39010/2-A1R0KP	81349	COIL	EA	1
C-31	14	PADZZ	5950-01-064-6336	M39010/03-A470KP	81349	COIL	EA	1
C-31	15	PADZZ		CR-19A/U4096KHZ	81349	CRYSTAL UNIT,QUARTZ	EA	1
C-31	16	PADZZ	5935-00-761-6901	8000-DG2-5	91506	SOCKET,PLUG-IN, ELECTRONIC COMP	EA	1
C-31	17	XDDZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-31	18	PADZZ	5905-00-125-0884	RCR05G362JP	81349	RESISTOR	EA	1
C-31	19	PADZZ	5905-00-568-7684	RCR05G682JP	81349	RESISTOR	EA	1
C-31	20	PADZZ	5905-00-125-0679	RCR05G221JP	81349	RESISTOR	EA	1
C-31	21	PADZZ	5905-00-180-8303	RCR05G152JP	81349	RESISTOR	EA	2
C-31	22	PADZZ	5905-00-568-7508	RCR05G332JP	81349	RESISTOR	EA	1
C-31	23	PADZZ	5905-00-568-7712	RCR05G103JP	81349	RESISTOR	EA	1
C-31	24	PADZZ	5905-00-141-2002	RCR07G301JP	81349	RESISTOR	EA	2
C-31	25	PADZZ	5905-00-141-0742	RCR07G181JP	81349	RESISTOR	EA	2
C-31	26	PADZZ	5905-00-141-1883	RCR07G121JP	81349	RESISTOR	EA	1
C-31	27	PADZZ	5961-00-022-5666	JANTX2N2907A	81349	TRANSISTOR	EA	1
C-31	28	PADZZ	5961-00-836-6663	JANTX2N918	81349	TRANSISTOR	EA	1
C-31	29	PADZZ	5961-00-438-0598	JANTX2N3251A	81349	TRANSISTOR	EA	1
C-31	30	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	2
C-31	31	XDDZZ	5310-00-938-2013	MS35649-224	96906	NUT	EA	2
C-31	32	XDDZZ	5310-00-043-708	NAS620C2	80205	WASHER	EA	2

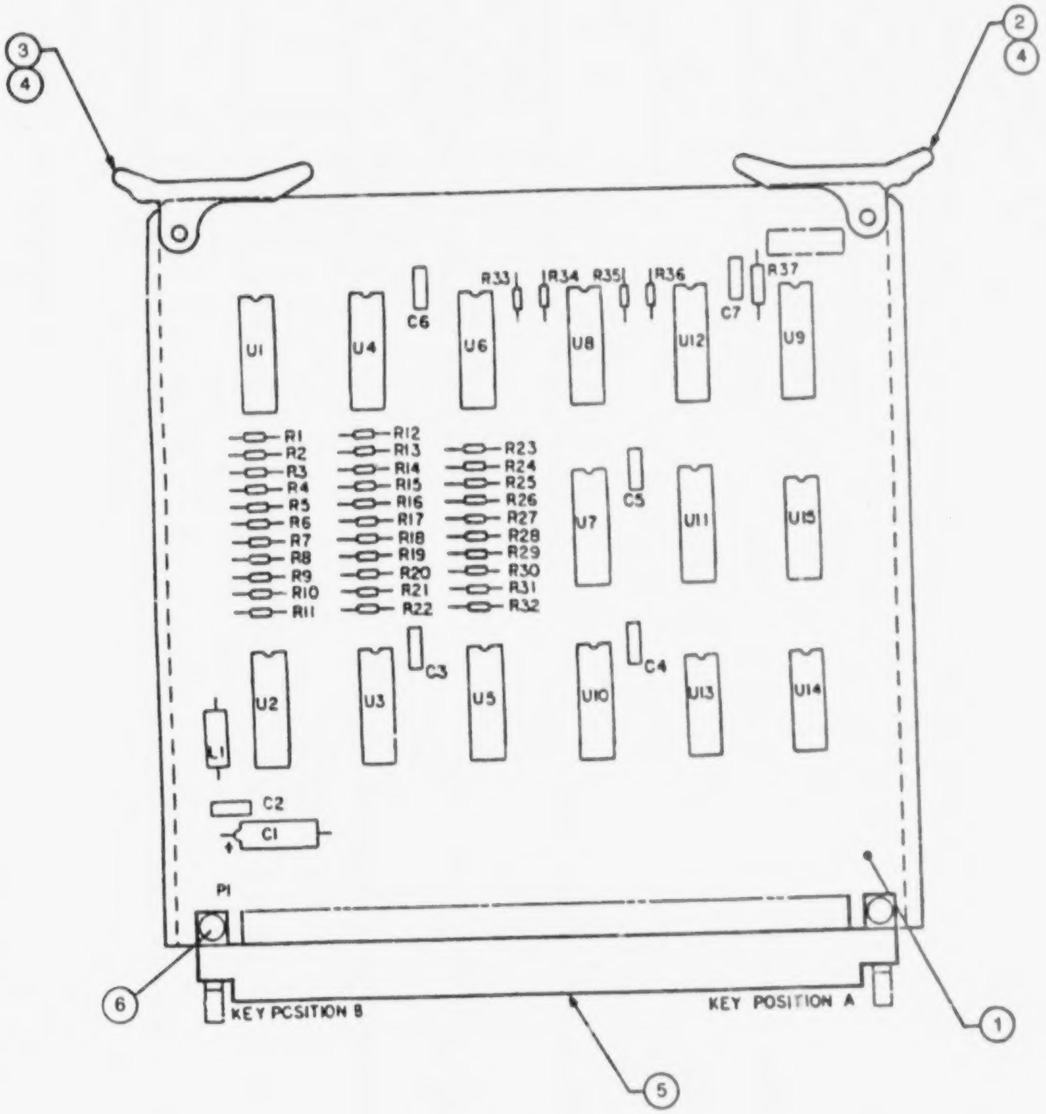


Figure C-32. Sweep Address Circuit Card Assembly (A2)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	7	R36	10								
C2	8	R37	11								
C3	8	U1	12								
C4	8	U2	12								
C5	8	U3	12								
C6	8	U4	12								
C7	8	U5	12								
L1	9	U6	12								
R1	10	U7	12								
R2	10	U8	12								
R3	10	U9	13								
R4	10	U10	13								
R5	10	U11	13								
R6	10	U12	13								
R7	10	U13	14								
R8	10	U14	14								
R9	10	U15	15								
R10	10										
R11	10										
R12	10										
R13	10										
R14	10										
R15	10										
R16	10										
R17	10										
R18	10										
R19	10										
R20	10										
R21	10										
R22	10										
R23	10										
R24	10										
R25	10										
R26	10										
R27	10										
R28	10										
R29	10										
R30	10										
R31	10										
R32	10										
R33	10										
R34	10										
R35	10										

Figure C-32. Sweep Address Circuit Card Assembly (A2)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 3126 - SWEEP ADDRESS CIRCUIT CARD ASSY (A2) 10-123584-4		
C-32	1	XA		12-123583-1	28815	PRINTED WIRNG BD	EA	1
C-32	2	XDHZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR, ELECTRICAL CARD	EA	1
C-32	3	XDHZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR, ELECTRICAL CARD	EA	1
C-32	4	XDHZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-32	5	XDHZZ	5935-01-064-6817	M1001-00844-BA	31413	CONNECTOR	EA	1
C-32	6	XDHZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-32	7	PAHZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-32	8	PAHZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	6
C-32	9	PAHZZ	5950-01-064-6335	M39010/02-A1R0KP	81349	COIL,RF,FXD	EA	1
C-32	10	PAHZZ	5905-00-568-7510	RCR05G472JP	81349	RESISTOR	EA	36
C-32	11	PAHZZ	5905-00-120-9154	RCR07G471JP	81349	RESISTOR	EA	1
C-32	12	PAHZZ	5962-01-028-6967	SNC54184J	01295	MICROCIRCUIT,DIGITAL	EA	8
C-32	13	PAHZZ	5962-00-262-0652	SNC54L193J	01295	MICROCIRCUIT,DIGITAL	EA	4
C-32	14	PAHZZ	5962-00-390-8014	M38510/02001BCB	81349	MICROCIRCUIT,DIGITAL	EA	2
C-32	15	PAHZZ	5962-00-390-7970	M38510/02005BCB	81349	MICROCIRCUIT,DIGITAL	EA	1

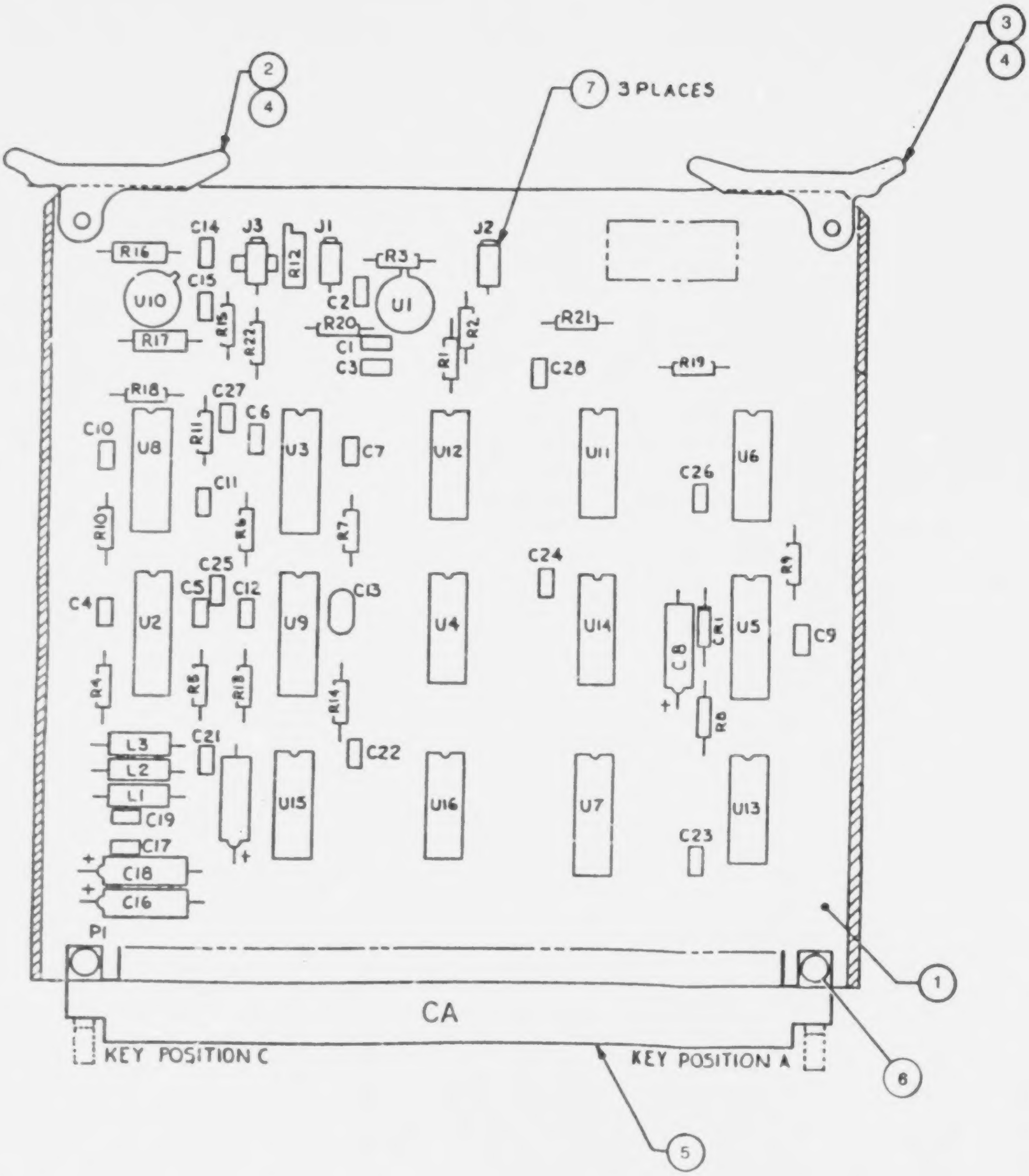


Figure C-33. Timing Controller Circuit Card Assembly (A3)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	17	R9	34								
C1	12	R10	35								
C2	13	R11	30								
C3	8	R12	40								
C4	14	R13	36								
C5	14	R14	35								
C6	14	R15	37								
C7	14	R16	39								
C8	11	R17	39								
C9	16	R18	38								
C10	14	R19	38								
C11	13	R20	38								
C12	14	R21	38								
C13	15	R22	38								
C14	12	U1	19								
C15	12	U2	20								
C16	9	U3	20								
C17	12	U4	21								
C18	10	U5	20								
C19	12	U6	21								
C20	10	U7	27								
C21	12	U8	20								
C22	12	U9	20								
C23	12	U10	26								
C24	12	U11	22								
C25	12	U12	23								
C26	12	U13	23								
C27	12	U14	25								
C28	12	U15	22								
J1	7	U16	24								
J2	7										
J3	7										
L1	18										
L2	18										
L3	18										
R1	28										
R2	29										
R3	30										
R4	31										
R5	31										
R6	32										
R7	32										
R8	33										

Figure C-33. Timing Controller Circuit Card Assembly (A3)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - TIMING CONTROLLER 3127 CIRCUIT CARD ASSY (A3) 1951-1-4137-1		
C-33	1	XA		1951-1-4136-1	28815	PRINTED WIRING BOARD	EA	1
C-33	2	XDHZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-33	3	XDHZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-33	4	XDHZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-33	5	XDHZZ	5935-01-064-7838	M1001-00844-CA	31413	CONNECTOR	EA	1
C-33	6	XDHZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-33	7	XDHZZ	5935-00-988-6438	450-3422-01-03	71279	JACK,TIP	EA	3
C-33	8	PAHZZ		M39014/01-1495	81349	CAPACITOR	EA	1
C-33	9	PAHZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-33	10	PAHZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-33	11	PAHZZ	5910-00-007-2002	M39003/01-2523	81349	CAPACITOR	EA	1
C-33	12	PAHZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	13
C-33	13	PAHZZ	5910-00-113-5277	M39014/01-1483	81349	CAPACITOR	EA	2
C-33	14	PAHZZ	5910-01-087-6360	CMR03F101J0YP	81349	CAPACITOR	EA	6
C-33	15	PAHZZ	5910-01-093-6320	CMR03F271J0YP	81349	CAPACITOR	EA	1
C-33	16	PAHZZ	5910-00-266-8403	M39014/02-1411	81349	CAPACITOR	EA	1
C-33	17	PAHZZ	5961-00-494-4915	JANTX 1N4148	81340	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-33	18	PAHZZ		M39010/02A1R0KR	81349	COIL,RF,FXD	EA	3
C-33	19	PAHZZ		M38510/10901BGX	81349	MICROCIRCUIT,LINEAR	EA	1
C-33	20	PAHZZ	5962-01-131-6195	96L02DMQB	07263	MICROCIRCUIT,DIGITAL	EA	5
C-33	21	PAHZZ	5962-00-369-7606	M38510/02105BCX	81349	MICROCIRCUIT,DIGITAL	EA	2
C-33	22	PAHZZ	5962-00-257-9226	M38510/02701BCB	81349	MICROCIRCUIT,DIGITAL	EA	2
C-33	23	PAHZZ	5962-00-390-7958	M38510/02004BCB	81349	MICROCIRCUIT,DIGITAL	EA	2
C-33	24	PAHZZ	5962-00-390-7970	M38510/02005BCB	81349	MICROCIRCUIT,DIGITAL	EA	1
C-33	25	PAHZZ		M38510/30302BCX	81349	MICROCIRCUIT,DIGITAL	EA	1
C-33	26	PAHZZ	5962-01-107-6925	LH0002H/883B	27014	MICROCIRCUIT,LINEAR	EA	1
C-33	27	PAHZZ	5962-01-016-7260	HM1-7611-8	34371	MICROCIRCUIT,DIGITAL	EA	1
C-33	28	PAHZZ	5905-00-141-1855	RCR07G100JP	81349	RESISTOR	EA	1
C-33	29	PAHZZ	5905-00-120-9154	RCR07G471JP	81349	RESISTOR	EA	1
C-33	30	PAHZZ	5905-00-110-7622	RCR07G682JP	81349	RESISTOR	EA	2
C-33	31	PAHZZ	5905-00-141-2421	RCR07G823JP	81349	RESISTOR	EA	2
C-33	32	PAHZZ	5905-00-116-8556	RCR07G223JP	81349	RESISTOR	EA	2
C-33	33	PAHZZ	5905-00-400-4528	RCR07G124JP	81349	RESISTOR	EA	1
C-33	34	PAHZZ	5905-00-141-0717	RCR07G473JP	81349	RESISTOR	EA	1
C-33	35	PAHZZ	5905-00-110-0388	RCR07G104JP	81349	RESISTOR	EA	2
C-33	36	PAHZZ	5905-00-114-5339	RCR07G154JP	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-33	37	PAHZZ	5905-00-114-0711	RCR07G472JP	81349	RESISTOR	EA	1
C-33	38	PAHZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	5
C-33	39	PAHZZ	5905-00-106-9344	RCR20G101JP	81349	RESISTOR	EA	2
C-33	40	PAHZZ	5905-01-077-9821	M39015/3-010XP	81349	RESISTOR	EA	1
C-33	41			M38510/30102BCX	81349	MICROCIRCUIT,DGTL	EA	1

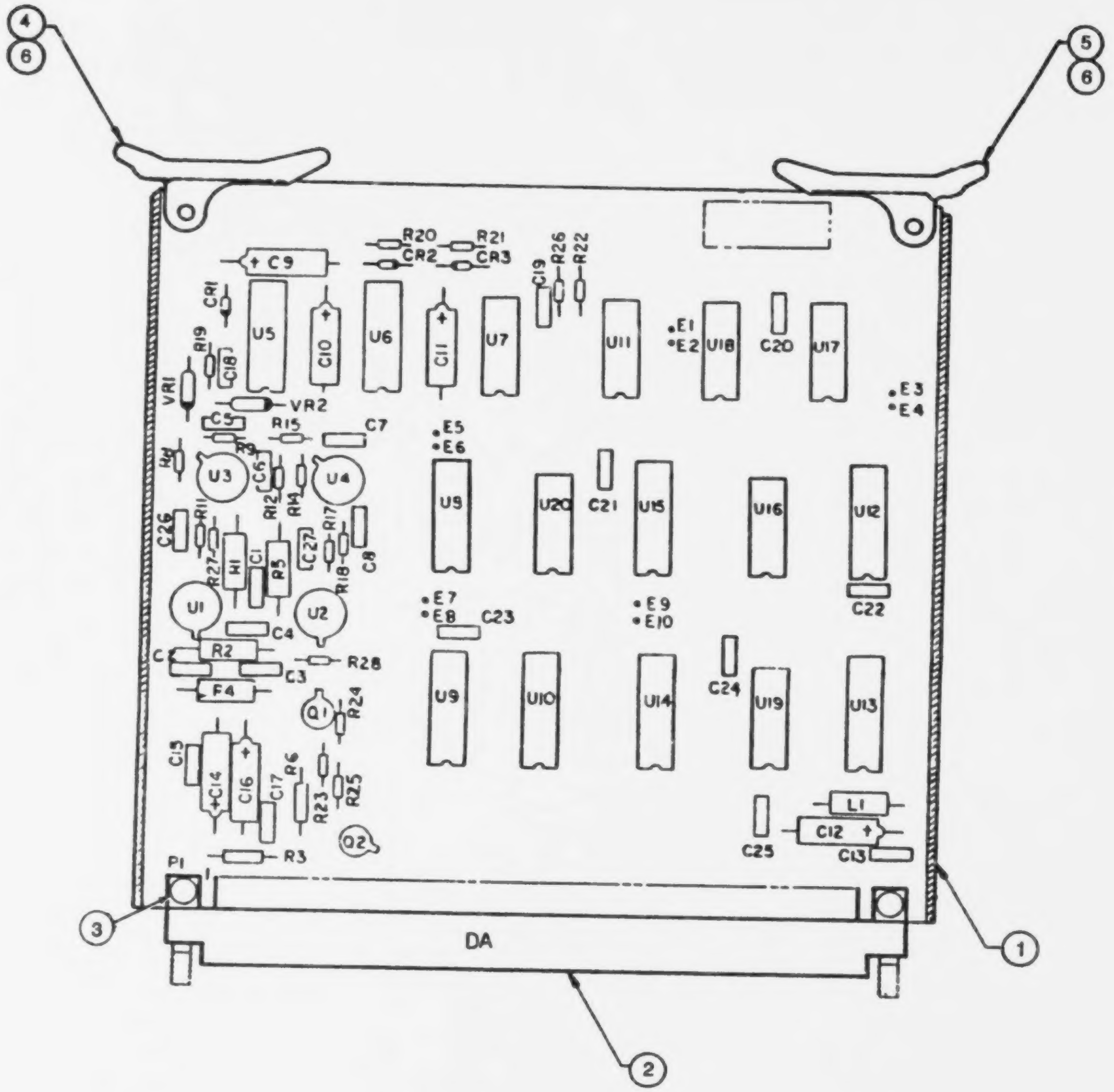


Figure C-34. Memory Address Circuit Card Assembly (A4)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	13	R15	26								
CR2	13	R17	32								
CR3	13	R18	26								
C1	9	R19	28								
C2	9	R20	28								
C3	9	R21	28								
C4	9	R22	29								
C5	9	R23	30								
C6	9	R24	29								
C7	9	R25	29								
C8	9	R26	29								
C9	7	R27	24								
C10	7	R28	24								
C11	7	U1	14								
C12	7	U2	14								
C13	9	U3	15								
C14	7	U4	15								
C15	9	U5	16								
C16	7	U6	16								
C17	9	U7	17								
C18	9	U8	18								
C19	9	U9	18								
C20	9	U10	18								
C21	9	U11	17								
C22	9	U12	18								
C23	9	U13	18								
C24	9	U14	18								
C25	9	U15	18								
C26	9	U16	17								
C27	10	U18	20								
L1	11	U19	21								
Q1	33	U20	21								
Q2	33	VR1	12								
R1	22	VR2	12								
R2	22										
R3	23										
R4	22										
R5	22										
R6	23										
R8	25										
R9	26										
R11	31										
R12	26										
R14	27										

Figure C-34. Memory Address Circuit Card Assembly (A4)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - MEMORY ADDRESS 3128 CIRCUIT CARD ASSY (A4) 10-123624-2		
C-34	1	XA		12-123623-1	28815	PRINTED WIRING BOARD	EA	1
C-34	2	XDHZZ		M1001-00844-DA	28815	CONNECTOR	EA	1
C-34	3	XDHZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-34	4	XDHZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-34	5	XDHZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-34	6	XDHZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-34	7	PAHZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	5
C-34	8	PAHZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-34	9	PAHZZ	5910-00-113-5499	M39014-02-1270	81349	CAPACITOR	EA	20
C-34	10	PAHZZ	5910-00-115-8456	M39014-02-1258	81349	CAPACITOR	EA	1
C-34	11	PAHZZ		M39014/02-A1R0KP	81349	COIL	EA	1
C-34	12	PAHZZ	5961-01-026-8942	JANTX 1N4622	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-34	13	PAHZZ	5961-00-494-4915	JANTX 1N4148	81349	SEMICONDUCTOR DEVICE,DIODE	EA	3
C-34	14	PAHZZ	5962-01-107-6925	LH0002H/883B	81349	MICROCRCT,LINEAR	EA	2
C-34	15	PAHZZ	5962-00-167-6330	M38510/10101BGC	81349	MICROCRCT,DIGITAL	EA	2
C-34	16	PAHZZ	5962-01-131-6195	96L02DMQB	07263	MICROCRCT,DIGITAL	EA	2
C-34	17	PAHZZ		M38510/30009BCX	81349	MICROCRCT,DIGITAL	EA	3
C-34	18	PAHZZ	5962-00-262-0652	SNJ54LS193J	01295	MICROCRCT,DIGITAL	EA	7
C-34	19	PAHZZ	5962-00-369-7606	M38510/02105BCB	81349	MICROCRCT,DIGITAL	EA	1
C-34	20	PAHZZ	5962-00-396-2262	M38510/02003BCB	81349	MICROCRCT,DIGITAL	EA	1
C-34	21	PAHZZ	5962-00-390-7970	M38510/02005BCB	81349	MICROCRCT,DIGITAL	EA	2
C-34	22	PAHZZ	5905-00-104-8350	RCR20G221JP	81349	RESISTOR	EA	4
C-34	23	PAHZZ	5905-00-158-9872	RCR07G390JP	81349	RESISTOR	EA	2
C-34	24	PAHZZ	5905-00-568-7712	RCR05G103JP	81349	RESISTOR	EA	2
C-34	25	PAHZZ	5905-00-519-0510	RCR05G393JP	81349	RESISTOR	EA	1
C-34	26	PAHZZ	5905-00-568-7225	RCR05G101JP	81349	RESISTOR	EA	4
C-34	27	PAHZZ	5905-00-519-0559	RCR05G104JP	81349	RESISTOR	EA	1
C-34	28	PAHZZ	5905-00-141-1761	RCR05G273JP	81349	RESISTOR	EA	3
C-34	29	PAHZZ	5905-00-125-0846	RCR05G471JP	81349	RESISTOR	EA	4
C-34	30	PAHZZ	5905-00-568-7510	RCR05G472JP	81349	RESISTOR	EA	1
C-34	31	PAHZZ	5905-00-125-0884	RCR05G362JP	81349	RESISTOR	EA	1
C-34	32	PAHZZ	5905-00-125-0886	RCR05G432JP	81349	RESISTOR	EA	1
C-34	33	PAHZZ	5961-00-858-3826	JANTX2N2222A	81349	TRANSISTOR	EA	2

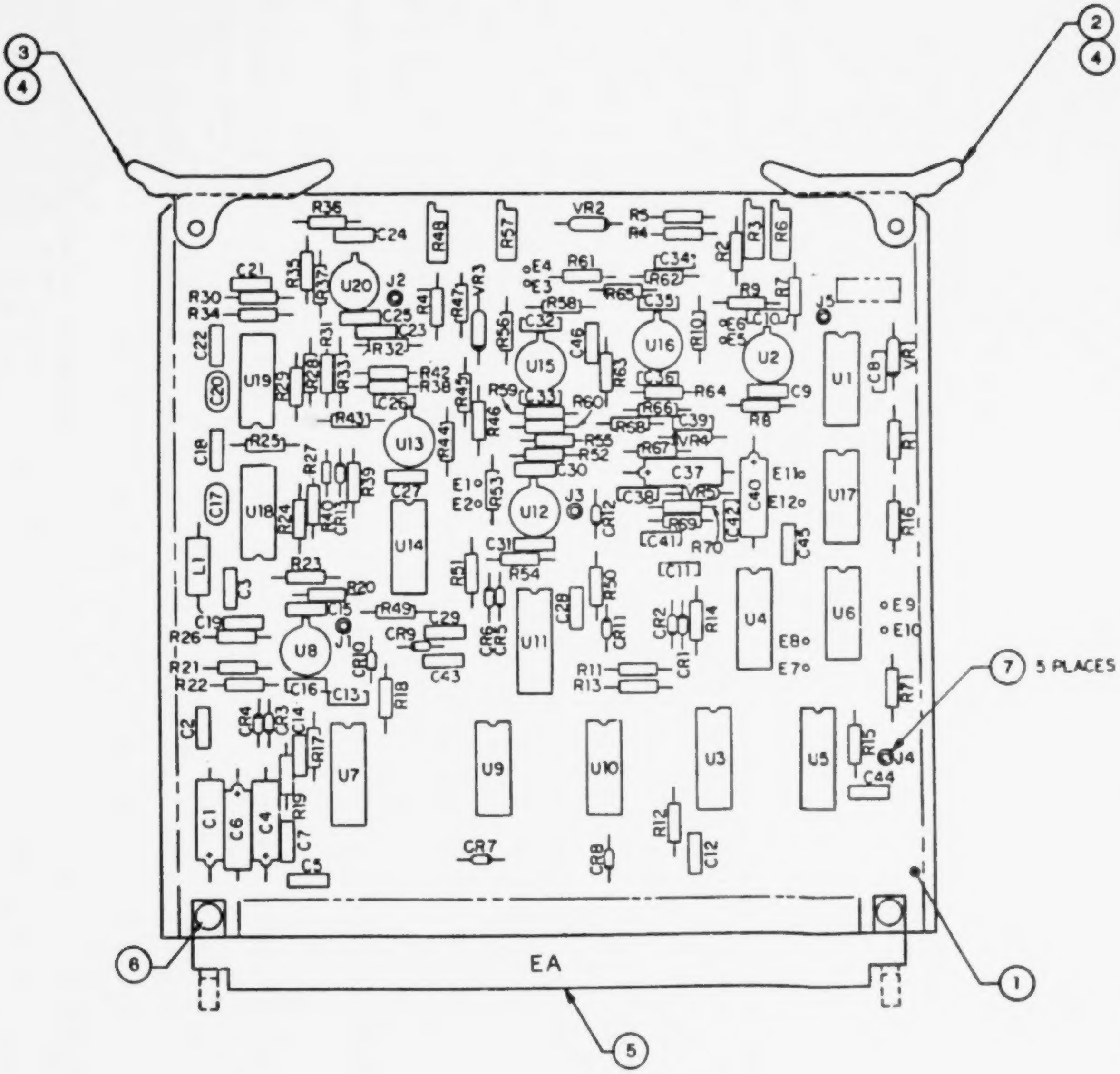


Figure C-35. Memory I/O Buffer Circuit Card Assembly (A5)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	37	C31	8	R22	15	R67	24				
CR2	37	C32	8	R23	29	R68	18				
CR3	37	C33	8	R24	29	R69	24				
CR4	37	C34	9	R25	15	R70	18				
CR5	37	C35	8	R26	15	R71	17				
CR6	37	C36	8	R27	20	U1	38				
CR7	37	C37	10	R28	23	U2	39				
CR8	37	C38	8	R29	23	U3	40				
CR9	37	C39	8	R30	15	U4	41				
CR10	37	C40	10	R31	29	U5	41				
CR11	37	C41	8	R32	25	U6	42				
CR12	37	C42	8	R33	29	U7	40				
CR13	37	C43	8	R34	15	U8	39				
C1	12	C44	8	R35	20	U9	43				
C2	8	C45	8	R36	15	U10	43				
C3	8	C46	8	R37	15	U11	40				
C4	11	J1	7	R38	24	U12	44				
C5	8	J2	7	R39	30	U13	44				
C6	11	J3	7	R40	26	U14	45				
C7	8	J4	7	R41	18	U15	39				
C8	8	J5	7	R42	30	U16	39				
C9	8	L1	34	R43	15	U17	46				
C10	8	P1	5	R45	16	U18	47				
C11	8	R1	19	R46	30	U19	47				
C12	8	R2	30	R47	15	U20	39				
C13	8	R3	33	R48	32	VR1	35				
C14	8	R4	29	R49	19	VR2	36				
C15	8	R5	19	R50	14	VR3	35				
C16	8	R6	33	R51	14	VR4	36				
C17	13	R7	28	R52	15	VR5	36				
C18	8	R8	15	R53	22						
C19	8	R9	15	R54	15						
C20	13	R10	22	R55	31						
C21	8	R11	14	R56	19						
C22	8	R12	14	R57	33						
C23	9	R13	17	R58	15						
C24	8	R14	17	R59	21						
C25	8	R15	17	R60	15						
C26	8	R16	17	R61	29						
C27	8	R17	17	R62	28						
C28	8	R18	14	R63	17						
C29	8	R19	14	R64	15						
C30	8	R20	15	R65	15						
C31	8	R21	22	R66	15						

Figure C-35. Memory I/O Buffer Circuit Card Assembly (A5)
(Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - MEMORY I/O 3129 BUFFER CIRCUIT CARD ASSY (A5) 10-123594-1		
C-35	1	XA		12-123593-1	28815	PRINTED WIRING BOARD	EA	1
C-35	2	XDDZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-35	3	XDDZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-35	4	XDDZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-35	5	PADZZ	5935-01-064-8352	M1001-00844-EA	31413	CONNECTOR	EA	1
C-35	6	XDDZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-35	7	XDDZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	5
C-35	8	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	37
C-35	9	PADZZ	5910-01-010-6473	M39014/01-1495	81349	CAPACITOR	EA	2
C-35	10	PADZZ	5910-00-007-2002	M39003/01-2523	81349	CAPACITOR	EA	2
C-35	11	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-35	12	PADZZ	5910-00-996-0667	M39003/01-2511	81349	CAPACITOR	EA	1
C-35	13	PADZZ	5910-01-087-6360	CMR03F101J0YP	81349	CAPACITOR	EA	2
C-35	14	PADZZ	5905-00-141-1869	RCR07G510JP	81349	RESISTOR	EA	6
C-35	15	PADZZ	5905-00-141-1183	RCR07G101JP	81349	RESISTOR	EA	20
C-35	16	PADZZ	5905-00-141-2003	RCR07G331JP	81349	RESISTOR	EA	1
C-35	17	PADZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	7
C-35	18	PADZZ	5905-00-106-1356	RCR07G152JP	81349	RESISTOR	EA	3
C-35	19	PADZZ	5905-00-997-2192	RCR07G202JP	81349	RESISTOR	EA	4
C-35	20	PADZZ	5905-00-136-8406	RCR07G242JP	81349	RESISTOR	EA	2
C-35	21	PADZZ	5905-00-131-9729	RCR07G302JP	81349	RESISTOR	EA	1
C-35	22	PADZZ	5905-00-114-0711	RCR07G472JP	81349	RESISTOR	EA	3
C-35	23	PADZZ	5905-00-111-1679	RCR07G512JP	81349	RESISTOR	EA	2
C-35	24	PADZZ	5905-00-104-8358	RCR07G822JP	81349	RESISTOR	EA	3
C-35	25	PADZZ	5905-00-136-3890	RCR07G513JP	81349	RESISTOR	EA	1
C-35		XC		21-129567-1 (selected at test from the following:)	28815	KIT,SPARE PARTS	EA	1
C-35	26	PADZZ	5905-00-141-1761	RCR05G273JP	81349	RESISTOR	EA	1
C-35	26	PADZZ	5905-00-519-0531	RCR05G513JP	81349	RESISTOR	EA	1
C-35	26	PADZZ	5905-00-141-1777	RCR05G753JP	81349	RESISTOR	EA	1
C-35	27	PADZZ	5905-00-159-8217	RNR55C1001FP	81349	RESISTOR	EA	3
C-35	28	PADZZ	5905-00-461-2214	RNR55C3011FP	81349	RESISTOR	EA	2
C-35	29	PADZZ	5905-00-137-4824	RNR55C4991FP	81349	RESISTOR	EA	6
C-35	30	PADZZ	5905-00-157-8939	RNR55C1002FP	61349	RESISTOR	EA	1
C-35	31	PADZZ	5905-00-760-0519	RNR55C1502FP	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-35	32	PADZZ	5905-01-088-2787	M39015/3-004XP	81349	RESISTOR	EA	1
C-35	33	PADZZ	5905-01-070-3508	M39015/3-007XP	81349	RESISTOR	EA	3
C-35	34	PADZZ	5950-01-064-6335	M39010/02A1R0KP	81349	COIL	EA	1
C-35	35	PADZZ	5961-01-024-2145	JANTX 1N4625	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-35	36	PADZZ	5961-01-012-8198	JANTX 1N4626	81349	SEMICONDUCTOR DEVICE,DIODE	EA	3
C-35	37	PADZZ	5961-00-494-4915	JANTX 1N4148	81349	SEMICONDUCTOR DEVICE,DIODE	EA	13
C-35	38	PADZZ	5962-01-041-7282	LM111J/883C	27014	MICROCIRCUIT,LINEAR	EA	1
C-35	39	PADZZ	5962-00-167-6330	M38510/10101BGC	68324	MICROCIRCUIT	EA	5
C-35	40	PADZZ		DAC100AC25/883	06665	MICROCIRCUIT,DIGITAL	EA	3
C-35	41	PADZZ		M38510/01309BEX	68324	MICROCIRCUIT	EA	2
C-35	42	PADZZ	5962-00-396-2262	M38510/02003BCB	81349	MICROCIRCUIT	EA	1
C-35	43	PADZZ	5962-00-390-7970	M38510/02005BCB	81349	MICROCIRCUIT	EA	2
C-35	44	PADZZ		1741S/BCXJC	04713	MICROCIRCUIT,LINEAR	EA	2
C-35	45	PADZZ	5962-01-008-8781	AH0014D/883B	27014	MICROCIRCUIT,DIGITAL	EA	1
C-35	46	PADZZ	5962-00-173-9776	M38510/00903BCB	81349	MICROCIRCUIT	EA	1
C-35	47	PADZZ	5962-01-036-0355	HA1-2420-8	34371	MICROCIRCUIT,DIGITAL	EA	2

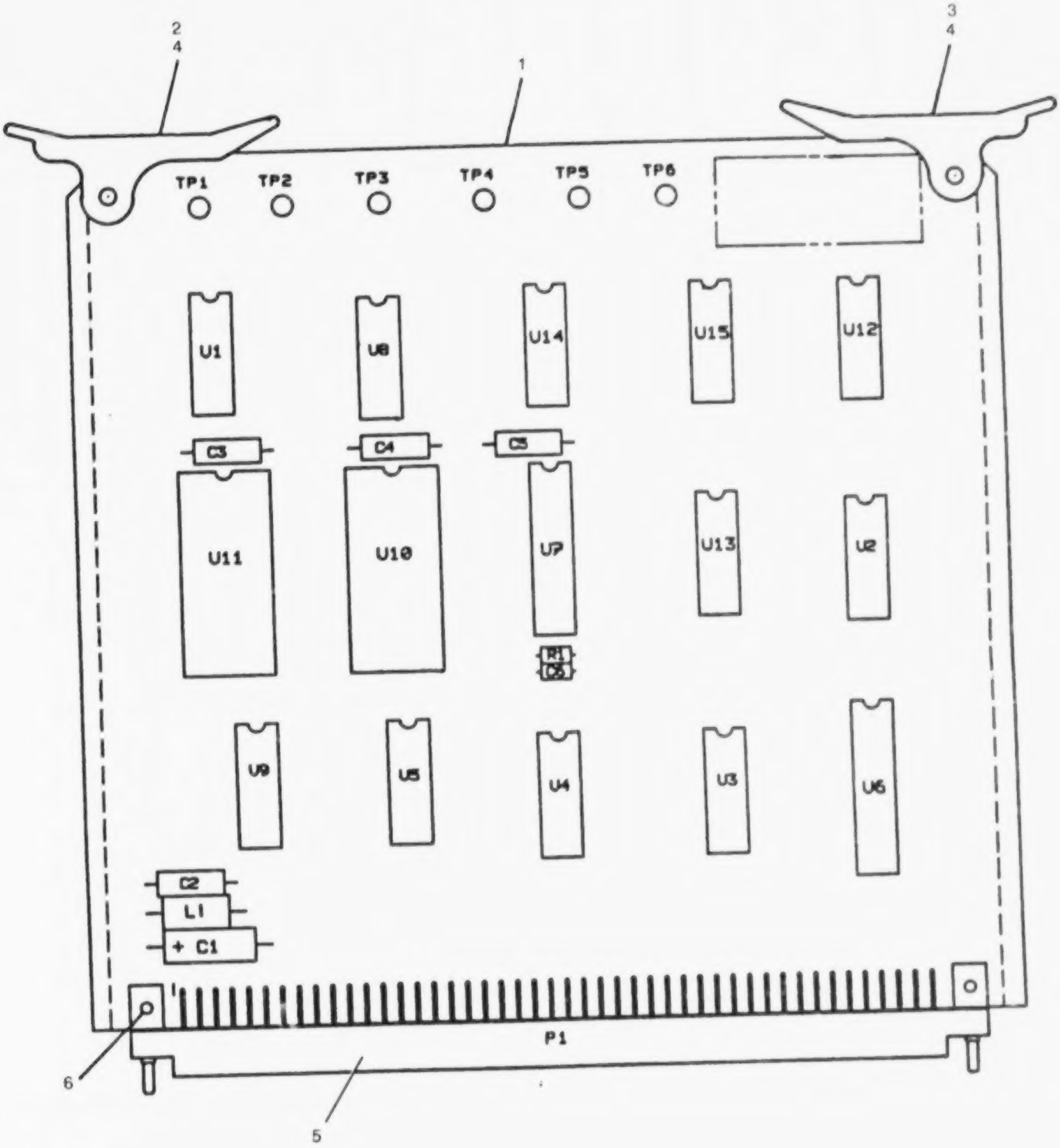


Figure C-36. Memory Circuit Card Assembly (A6)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	10										
C2	8										
C3	8										
C4	8										
C5	8										
C6	9										
L1	23										
P1	5										
R1	11										
TP1	7										
TP2	7										
TP3	7										
TP4	7										
TP5	7										
TP6	7										
U1	16										
U2	18										
U3	15										
U4	15										
U5	15										
U6	20										
U7	19										
U8	17										
U9	17										
U10	21										
U11	21										
U12	12										
U13	14										
U14	13										
U15	12										

Figure C-36. Memory Circuit Card Assembly (A6)
(Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	(1) ILLUSTRATION ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - MEMORY CIRCUIT 3130 CARD ASSY (A6) C5135457-1		
C-36	1	XA		C5135460-1	57958	PRINTED WIRING BD	EA	1
C-36	2	XDDZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR (RED)	EA	1
C-36	3	XDDZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR (WHITE)	EA	1
C-36	4	XDDZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-36	5			M1001-00844FH	31413	CONNECTOR,PLUG	EA	1
C-36	6	XDDZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-36	7	XDHZZ	5940-00-082-5002	SE16XC01	81349	TEST TERMINAL	EA	6
C-36	8	PAHZZ	5910-00-113-5610	M39014/05-2291	81349	CAPACITOR	EA	4
C-36	9	PAHZZ	5910-00-113-5490	M39014/05-2219	81349	CAPACITOR	EA	1
C-36	10	PAHZZ	5910-00-996-0667	M39003-01-2511	81349	CAPACITOR	EA	1
C-36	11	PAHZZ	5905-01-159-7544	RLR05C1000FP	81349	RESISTOR	EA	1
C-36	12	PAHZZ	5962-01-093-0110	M38510-30001BCX	81349	MICROCIRCUIT	EA	2
C-36	13	PAHZZ	5962-01-091-8195	M38510-30003BCX	81349	MICROCIRCUIT	EA	1
C-36	14	PAHZZ	5962-01-074-4122	M38510-30005BCX	81349	MICROCIRCUIT	EA	1
C-36	15	PAHZZ	5962-01-050-0921	M38510-30903BEX	81349	MICROCIRCUIT	EA	3
C-36	16	PAHZZ	5962-01-068-9593	M38510-30605BCX	81349	MICROCIRCUIT	EA	1
C-36	17	PAHZZ	5962-01-096-4171	M38510-30106BEX	81349	MICROCIRCUIT	EA	2
C-36	18	PAHZZ	5962-01-066-1153	M38510-31508BEX	81349	MICROCIRCUIT	EA	1
C-36	19	PAHZZ	5962-01-093-8823	M38510/32401BRX	81349	MICROCIRCUIT	EA	1
C-36	20	PAHZZ	5962-01-086-7634	M38510/32403BRX	81349	MICROCIRCUIT	EA	1
C-36	21	PAHZZ	5962-01-215-0975	8103908JX	14933	MICROCIRCUIT	EA	2
C-36	22	PAHZZ	5950-01-064-6335	M39010/02-A1R0KP	81349	COIL	EA	1

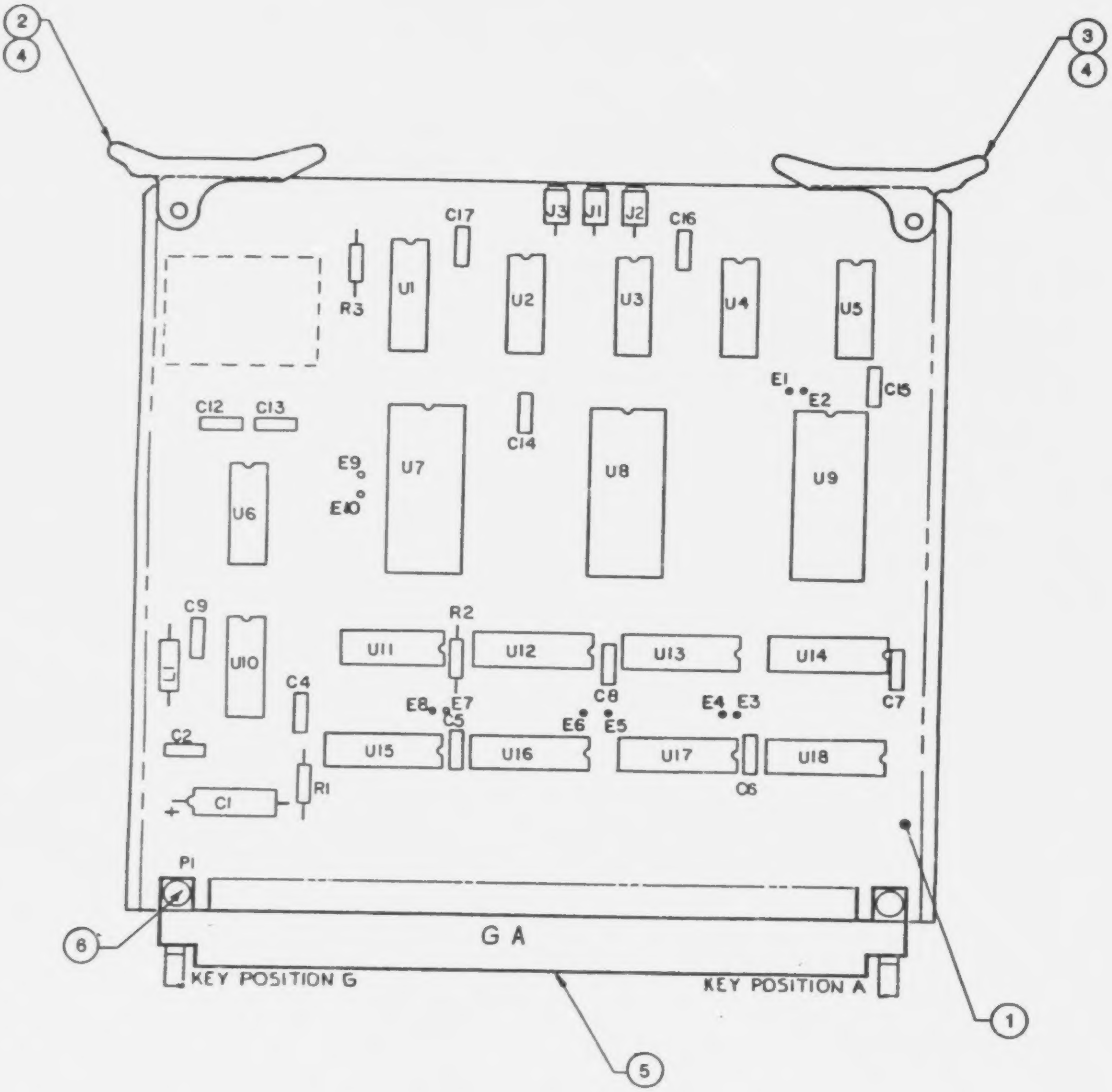


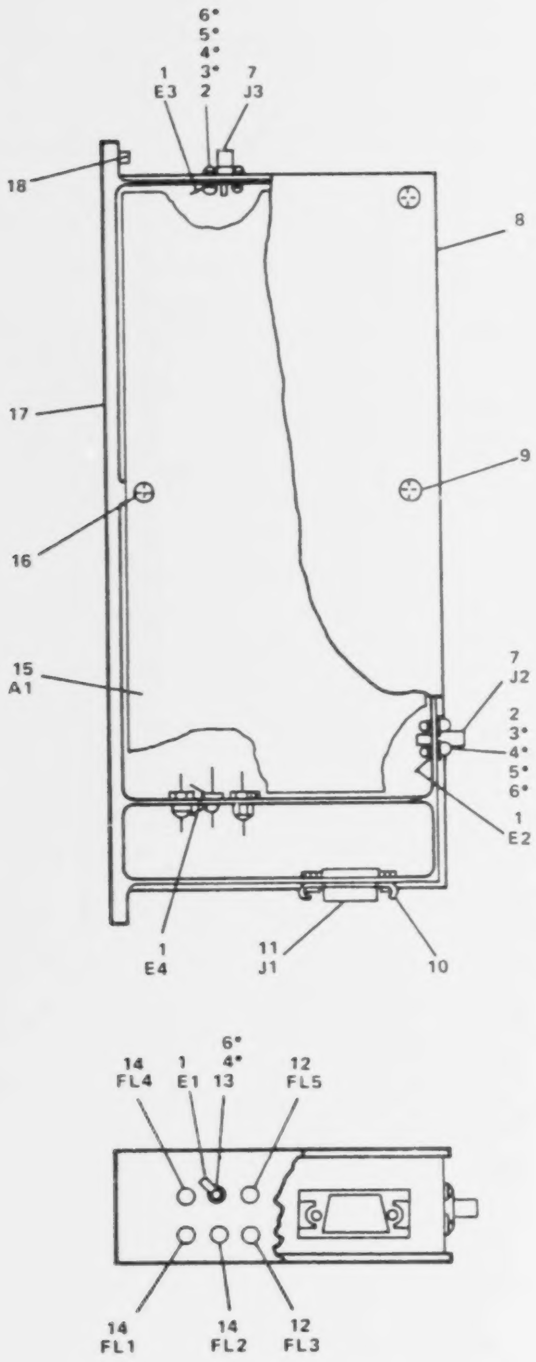
Figure C-37. RCU Interface Circuit Card Assembly (A7)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
C1	7										
C2	8										
C4	8										
C5	8										
C6	8										
C7	8										
C8	8										
C9	9										
C12	9										
C13	9										
C14	8										
C15	8										
C16	8										
C17	8										
J1	19										
J2	19										
J3	19										
L1	10										
P1	5										
R1	17										
R2	17										
R3	18										
U1	11										
U2	14										
U3	14										
U4	14										
U5	14										
U6	15										
U7	12										
U8	12										
U9	12										
U10	15										
U11	16										
U12	13										
U13	13										
U14	13										
U15	13										
U16	13										
U17	13										
U18	13										

Figure C-37. RCU Interface Circuit Card Assembly (A7)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - RCU INTERFACE 3131 CIRCUIT CARD ASSY (A7) 10-123614-1		
C-37	1	XA		12-123613-1	28815	PRINTED WIRING BOARD	EA	1
C-37	2	XDHZZ	5999-01-028-6070	14009-1P14	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-37	3	XDHZZ	5999-00-605-7936	14009-1P12	91506	RETAINER-EJECTOR, ELEC CARD	EA	1
C-37	4	XDHZZ	5999-01-068-9564	14007-1P4	91506	PIN,SPRING	EA	2
C-37	5	XDHZZ	5935-01-065-4186	M1001-00844-GA	81349	CONNECTOR	EA	1
C-37	6	XDHZZ	5320-00-243-8357	MS20470AD2-5	96906	RIVET	EA	2
C-37	7	PAHZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-37	8	PAHZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	10
C-37	9	PAHZZ	5910-00-266-8403	M39014/02-1411	81349	CAPACITOR	EA	3
C-37	10	PAHZZ	5950-01-064-6335	M39010/02-A1R0KP	81349	COIL	EA	1
C-37	11	PAHZZ	5962-01-042-9794	93L28DMQB	07263	MICROCIRCUIT,DIGITAL	EA	1
C-37	12	PAHZZ	5962-01-032-6842	93L08DMQB	07263	MICROCIRCUIT,DIGITAL	EA	3
C-37	13	PAHZZ	5962-01-050-0921	M38510-30903BEX	81349	MICROCIRCUIT,DIGITAL	EA	7
C-37	14	PAHZZ	5962-00-173-9776	M38510/00903BCB	81349	MICROCIRCUIT	EA	4
C-37	15	PAHZZ	5962-01-086-0293	SNJ55182J	01295	MICROCIRCUIT,DIGITAL	EA	2
C-37	16	PAHZZ	5962-00-257-9226	M38510/02701BCB	81349	MICROCIRCUIT	EA	1
C-37	17	PAHZZ		RCR07G102JP	81349	RESISTOR	EA	2
C-37	18	PAHZZ	5905-00-120-9154	RCR07G471JP	81349	RESISTOR	EA	1
C-37	19	XDHZZ	5935-00-988-6438	450-3422-01-03	71279	JACK,TIP	EA	3



*DENOTES HIDDEN PART

Figure C-38. IF Amplifier Electronic Components Assembly (A9)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 3132 - IF AMPLIFIER ELECTRONIC COMPONENTS ASSY (A9) 1951-1-4133-1		
C-38	1	PADDD	5865-01-248-7493	1951-1-4132-1	15942	CIRCUIT CARD ASSY (SEE FIG C-39)	EA	1
C-38	2	XDDZZ		1951-1-3021-1	15942	COVER,ACCESS	EA	2
C-38	3	XDDZZ	5935-00-079-8636	DE51224-1	71468	RETAINER,SLIDING	EA	1
C-38	4	PADZZ	5915-01-034-2934	1270-066	72982	FILTER,RFI	EA	2
C-38	5	PADZZ	5915-01-045-8126	51-712-003	33095	FILTER,RF	EA	3
C-38	6	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	2
C-38	7	XDDZZ		1951-1-4123-1	15942	CHASSIS,ELEC	EA	1
C-38	8	XDDZZ	5307-00-411-4484	9723SS0440-7	06540	POST,ELEC-MECH EQUIP	EA	6
C-38	9	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	4
C-38	10	PADZZ	5935-00-466-3394	M24308/4-1	81349	CONNECTOR	EA	1
C-38	11	XDDZZ	5305-01-070-2969	NAS1189E04P4B	80205	SCREW	EA	12
C-38	12	XDDZZ	5305-00-054-5637	MS51957-3	96906	SCREW	EA	1
C-38	13	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	8
C-38	14	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	12
C-38	15	XDDZZ	5310-00-011-6123	MS35338-69	96906	WASHER	EA	9
C-38	16	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	6
C-38	17	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	9
C-38	18	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2

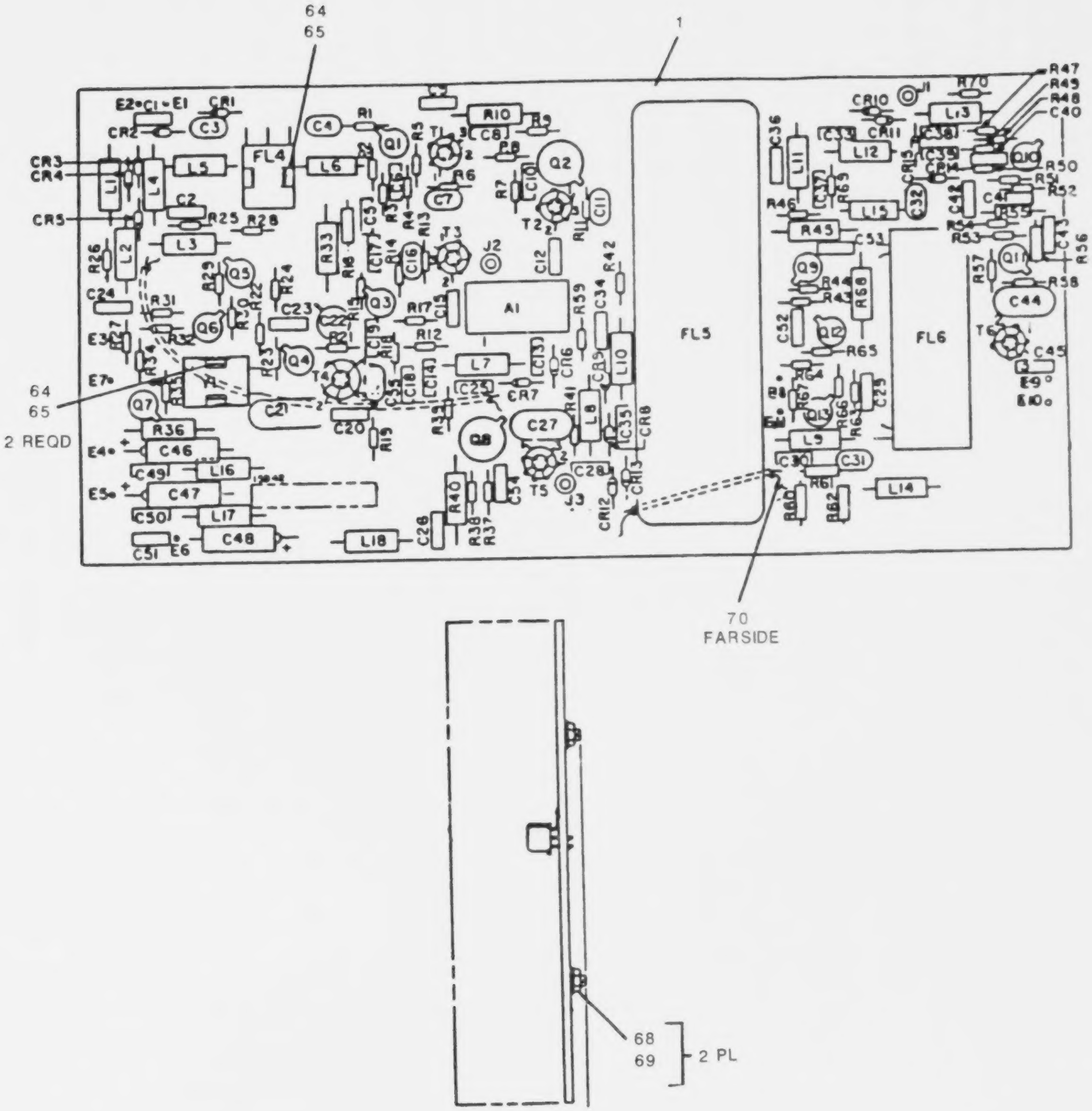


Figure C-39. IF Amplifier Circuit Card Assembly (A9A1) (Sheet 1 of 2)

LEGEND

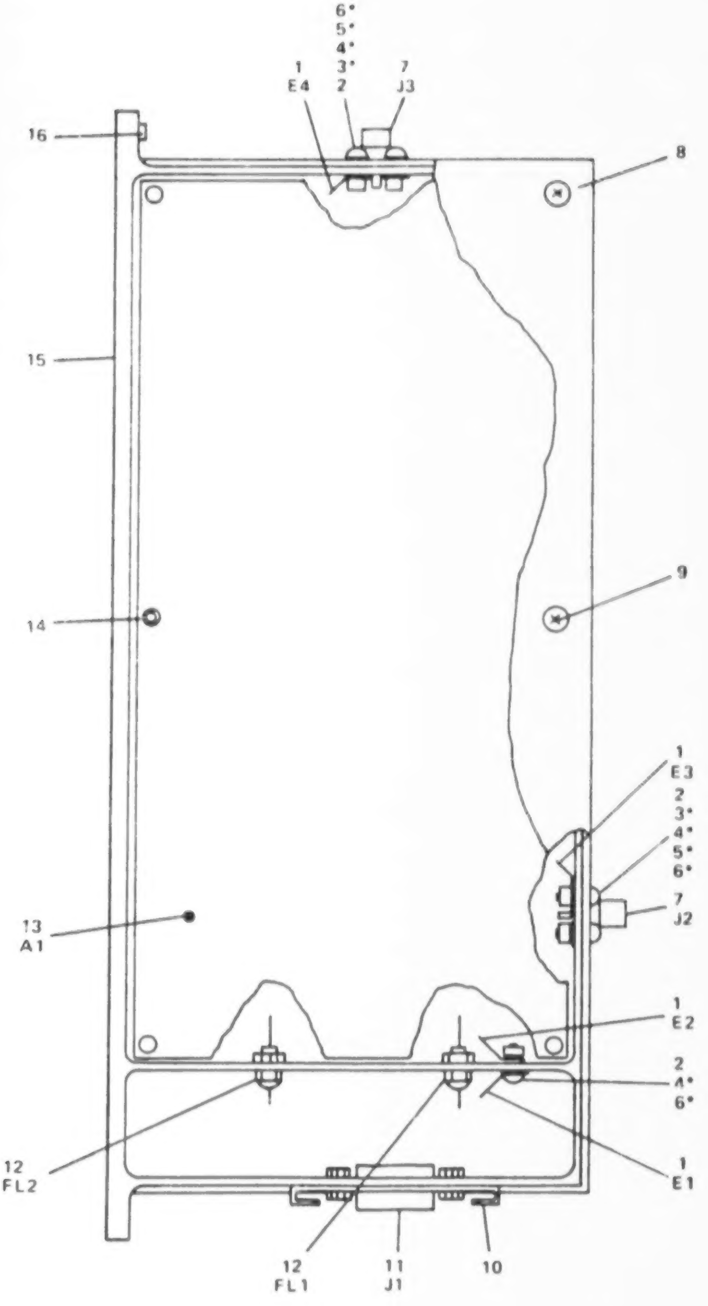
REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
A1	67	C31	8	L15	20	R30	43	T5	61		
CR1	14	C32	8	L16	18	R31	46	T6	66		
CR2	14	C33	4	L17	18	R32	46	XY1	64		
CR3	14	C34	4	L18	18	R33	56	Y1	63		
CR4	14	C35	4	Q1	22	R34	43				
CR5	14	C36	4	Q2	23	R35	41				
CR6	14	C37	4	Q3	24	R36	56				
CR7	14	C38	4	Q4	22	R37	48				
CR8	14	C39	4	Q5	21	R38	47				
CR9	14	C40	4	Q6	22	R39	25				
CR10	14	C41	4	Q7	21	R40	57				
CR11	14	C42	4	Q8	23	R41	31				
CR12	14	C43	4	Q9	21	R42	30				
CR13	14	C44	10	Q10	22	R43	43				
CR15	14	C45	4	Q11	22	R44	41				
C1	4	C46	5	Q12	21	R45	56				
C2	4	C47	6	Q13	22	R46	30				
C3	7	C48	5	R1	27	R47	27				
C4	7	C49	3	R2	36	R48	36				
C5	4	C50	3	R3	42	R49	42				
C6	4	C51	3	R4	45	R50	45				
C7	8	C52	4	R5	27	R51	27				
C8	4	C53	4	R6	40	R52	33				
C9	4	C54	4	R7	48	R53	44				
C10	4	C55	12	R8	47	R54	44				
C11	8	FL4	15	R9	25	R55	54				
C12	4	FL5	16	R10	57	R56	51				
C13	4	FL6	17	R11	37	R57	27				
C14	4	J1	2	R12	32	R58	34				
C15	4	J2	2	R13	39	R59	35				
C16	9	J3	2	R14	28	R60	53				
C17	4	L1	18	R15	29	R61	52				
C18	4	L2	18	R16	55	R62	53				
C19	4	L3	18	R17	49	R63	30				
C20	3	L4	18	R18	50	R64	46				
C21	11	L5	19	R19	26	R65	41				
C22	13	L6	19	R21	30	R66	43				
C23	4	L7	18	R22	38	R67	46				
C24	4	L8	18	R23	25	R68	56				
C25	4	L9	18	R24	30	R69	30				
C26	4	L10	18	R25	32	R70	35				
C27	10	L11	18	R26	35	T1	58				
C28	4	L12	18	R27	30	T2	59				
C29	4	L13	18	R28	35	T3	62				
C30	4	L14	20	R29	41	T4	60				

Figure C-39. IF Amplifier Circuit Card Assembly (A9A1) (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - IF AMPLIFIER CIRCUIT CARD ASSY (A9A1) 1951-1-4132-1		
C-39	1	XA		1951-1-4131-1		PRINTED WIRING BOARD	EA	1
C-39	2	XDDZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	3
C-39	3	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	4
C-39	4	PADZZ	5910-00-115-8456	M39014/02-1258	81349	CAPACITOR	EA	36
C-39	5	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-39	6	PADZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	1
C-39	7	PADZZ	5910-01-031-5372	CMR03C8R0D0CP	81349	CAPACITOR	EA	2
C-39	8	PADZZ	5910-01-043-8882	CMR03E300J0YP	81349	CAPACITOR	EA	4
C-39	9	PADZZ		CMR03E750J0YP	81349	CAPACITOR	EA	1
C-39	10	PADZZ	5910-01-044-7485	CMR05F241J0DP	81349	CAPACITOR	EA	2
C-39	11	PADZZ	5910-01-043-4309	CMR06F681J0DP	81349	CAPACITOR	EA	1
C-39	12	PADZZ	5910-01-028-9220	CMR03E330J0YP	81349	CAPACITOR	EA	1
C-39	13	PADZZ	5910-00-170-9557	JMC8052	91293	CAPACITOR	EA	1
C-39	14	PADZZ	5961-01-065-7579	TX-3188	50434	SEMICONDUCTOR DEVICE,DIODE	EA	15
C-39	15	PADZZ	5915-01-064-5721	4102F	25120	FILTER,BAND PASS	EA	1
C-39	16	PADZZ	5915-01-070-3568	258B5	00136	FILTER,RF	EA	1
C-39	17	PADZZ	5915-01-064-9246	1479	25120	FILTER,BAND PASS	EA	1
C-39	18	PADZZ	5900-01-064-9303	M39010/03A150KP	81349	COIL	EA	14
C-39	19	PADZZ	5950-01-069-1819	558-7107-17	71279	COIL,RF	EA	2
C-39	20	PADZZ	5950-01-064-9304	558-7107-23	71279	COIL,RF	EA	2
C-39	21	PADZZ	5961-00-022-5666	JANTX2N2907A	81349	TRANSISTOR	EA	4
C-39	22	PADZZ	5961-00-858-3826	JANTX2N2222A	81349	TRANSISTOR	EA	6
C-39	23	PADZZ		U332-2	17856	TRANSISTOR	EA	2
C-39	24	PADZZ	5961-00-836-6663	JANTX2N918	81349	TRANSISTOR	EA	1
C-39	25	PADZZ	5905-00-028-9379	RCR05G100JP	81349	RESISTOR	EA	3
C-39	26	PADZZ	5905-00-093-5437	RCR05G220JP	81349	RESISTOR	EA	1
C-39	27	PADZZ	5905-00-028-9448	RCR05G330JP	81349	RESISTOR	EA	5
C-39	28	PADZZ	5905-00-028-9454	RCR05G390JP	81349	RESISTOR	EA	1
C-39	29	PADZZ	5905-00-028-9521	RCR05G430JP	81349	RESISTOR	EA	1
C-39	30	PADZZ	5905-00-028-9522	RCR05G470JP	81349	RESISTOR	EA	7
C-39	31	PADZZ	5905-00-028-9523	RCR05G510JP	81349	RESISTOR	EA	1
C-39	32	PADZZ	5905-00-568-7225	RCR05G101JP	81349	RESISTOR	EA	2
C-39	33	PADZZ	5905-00-515-7266	RCR05G201JP	81349	RESISTOR	EA	1
C-39	34	PADZZ	5905-00-125-0844	RCR05G431JP	81349	RESISTOR	EA	1
C-39	35	PADZZ	5905-00-125-0846	RCR05G471JP	81349	RESISTOR	EA	4
C-39	36	PADZZ	5905-00-125-0847	RCR05G511JP	81349	RESISTOR	EA	2
C-39	37	PADZZ	5905-00-125-0874	RCR05G561JP	81349	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-39	38	PADZZ	5905-00-125-0876	RCR05G621JP	81349	RESISTOR	EA	1
C-39	39	PADZZ	5905-00-515-7297	RCR05G821JP	81349	RESISTOR	EA	1
C-39		XC		1951-1-1062-1 (selected at test from the following:)	15942	KIT,PARTS,DWG,R6	EA	1
C-39	40	PADZZ		RCR05G501JP	81349	RESISTOR	EA	1
C-39	40	PADZZ	5905-00-568-7228	RCR05G102JP	81349	RESISTOR	EA	1
C-39	40	PADZZ	5905-00-568-7472	RCR05G202JP	81349	RESISTOR	EA	1
C-39	40	PADZZ	5905-00-568-7509	RCR05G392JP	81349	RESISTOR	EA	1
C-39	41	PADZZ	5905-00-568-7234	RCR05G182JP	81349	RESISTOR	EA	4
C-39	42	PADZZ	5905-00-568-7472	RCR05G202JP	81349	RESISTOR	EA	2
C-39	43	PADZZ	5905-00-568-7504	RCR05G302JP	81349	RESISTOR	EA	4
C-39	44	PADZZ	5905-00-568-7508	RCR05G332JP	81349	RESISTOR	EA	2
C-39	45	PADZZ	5905-00-568-7509	RCR05G392JP	81349	RESISTOR	EA	2
C-39	46	PADZZ	5905-00-568-7510	RCR05G472JP	81349	RESISTOR	EA	4
C-39	47	PADZZ	5905-00-141-1747	RCR05G223JP	81349	RESISTOR	EA	2
C-39	48	PADZZ	5905-00-519-0535	RCR05G823JP	81349	RESISTOR	EA	2
C-39	49	PADZZ	5905-00-180-8303	RCR05G152JP	81349	RESISTOR	EA	1
C-39	50	PADZZ	5905-00-568-7497	RCR05G222JP	81349	RESISTOR	EA	1
C-39		XC		1951-1-1063-1 (selected at test from the following:)	15942	KIT,PARTS,DWG,R56	EA	1
C-39	51	PADZZ	5905-00-141-1869	RCR07G510JP	81349	RESISTOR	EA	1
C-39	51	PADZZ	5905-00-890-5637	RCR07G750JP	81349	RESISTOR	EA	1
C-39	51	PADZZ	5905-00-141-1183	RCR07G101JP	81349	RESISTOR	EA	1
C-39	51	PADZZ	5905-00-141-1885	RCR07G151JP	81349	RESISTOR	EA	1
C-39		XC		1951-1-1064-1 (selected at test from the following:)	15942	KIT,PARTS,DWG,R61	EA	1
C-39	52	PADZZ	5905-00-141-1855	RCR07G100JP	81349	RESISTOR	EA	1
C-39	52	PADZZ	5905-00-106-3667	RCR07G120JP	81349	RESISTOR	EA	1
C-39	52	PADZZ	5905-00-115-7953	RCR07G180JP	81349	RESISTOR	EA	1
C-39	52	PADZZ	5905-00-442-9356	RCR07G240JP	81349	RESISTOR	EA	1
C-39	53	PADZZ	5905-00-141-2002	RCR07G301JP	81349	RESISTOR	EA	2
C-39	54	PADZZ	5905-00-120-9154	RCR07G471JP	81349	RESISTOR	EA	1
C-39	55	PADZZ	5905-00-104-8370	RCR07G361JP	81349	RESISTOR	EA	1
C-39	56	PADZZ	5905-00-105-7764	RCR07G222JP	81349	RESISTOR	EA	4
C-39	57	PADZZ	5905-00-141-1897	RCR07G271JP	81349	RESISTOR	EA	2
C-39	58	PADZZ	5950-01-066-6248	1951-1-2023-1	15942	TRANSFORMER,RF	EA	1
C-39	59	PADZZ	5950-01-066-6247	1951-1-2024-1	15942	TRANSFORMER,RF	EA	1
C-39	60	PADZZ	5950-01-066-6246	1951-1-2025-1	15942	TRANSFORMER,RF	EA	1
C-39	61	PADZZ	5950-01-066-6245	1951-1-2026-1	15942	TRANSFORMER,RF	EA	1
C-39	62	PADZZ	5950-01-066-6244	1951-1-2067-1	15942	TRANSFORMER,RF	EA	1
C-39	63	PADZZ		CRI12U19300KHZ	81349	CRYSTAL UNIT,QUARTZ CRYSTAL	EA	1
C-39	64	PADZZ	5340-00-120-2035	100-206-10	99378	HOLDER,UNIT	EA	2
C-39	65	XDDZZ	5320-00-119-6754	MS20470AD2-3	96906	RIVET	EA	4
C-39	66	PADZZ	5950-01-066-6243	1951-1-2442-1	15942	COIL,RF	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-39	67	PADZZ	4935-00-587-1713	M6DH	14482	MIXER, DOUBLE-BALANCED	EA	1
C-39	68	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	2
C-39	69	XDDZZ	5310-00-208-3786	NAS671C4	80205	NUT	EA	2
C-39	70	XDDZZ		4500	12515	CABLE,RF	EA	1



*DENOTES HIDDEN PART

BDR 295
10 123525 1

Figure C-40. Log Amplifier Electronic Components Assembly (A10)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - LOG AMPLIFIER ELECTRONIC COMPONENTS ASSY (A10) 10-123525-1		
C-40	1	XDDZZ		1951-1-3021-1	15942	COVER,ACCESS	EA	2
C-40		PADDD	5865-01-249-0378	10-123524-1	28815	CIRCUIT CARD ASSY,LOG AMPLIFIER (SEE FIG C-41)	EA	1
C-40	2	XDDZZ	5935-00-079-8636	DE51224-1	71468	RETAINER,SLIDING	EA	1
C-40	3	PADZZ	5915-01-045-8126	51-712-003	33095	FILTER,RF	EA	2
C-40	4	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	2
C-40	5	XDDZZ		1951-1-4191-1	15942	CHASSIS,ELEC EQUIP	EA	1
C-40	6	XDDZZ	5307-00-411-4484	9723-SS-0440-7	06540	POST,ELEC-MECH	EA	6
C-40	7	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	4
C-40	8	PADZZ	5935-00-466-3394	M24308/4-1	81349	CONNECTOR	EA	1
C-40	9	XDDZZ	5305-01-070-2969	NAS1189E04P4B	80205	SCREW	EA	12
C-40	10	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	9
C-40	11	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	12
C-40	12	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	9
C-40	13	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	6
C-40	14	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	9
C-40	15	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2

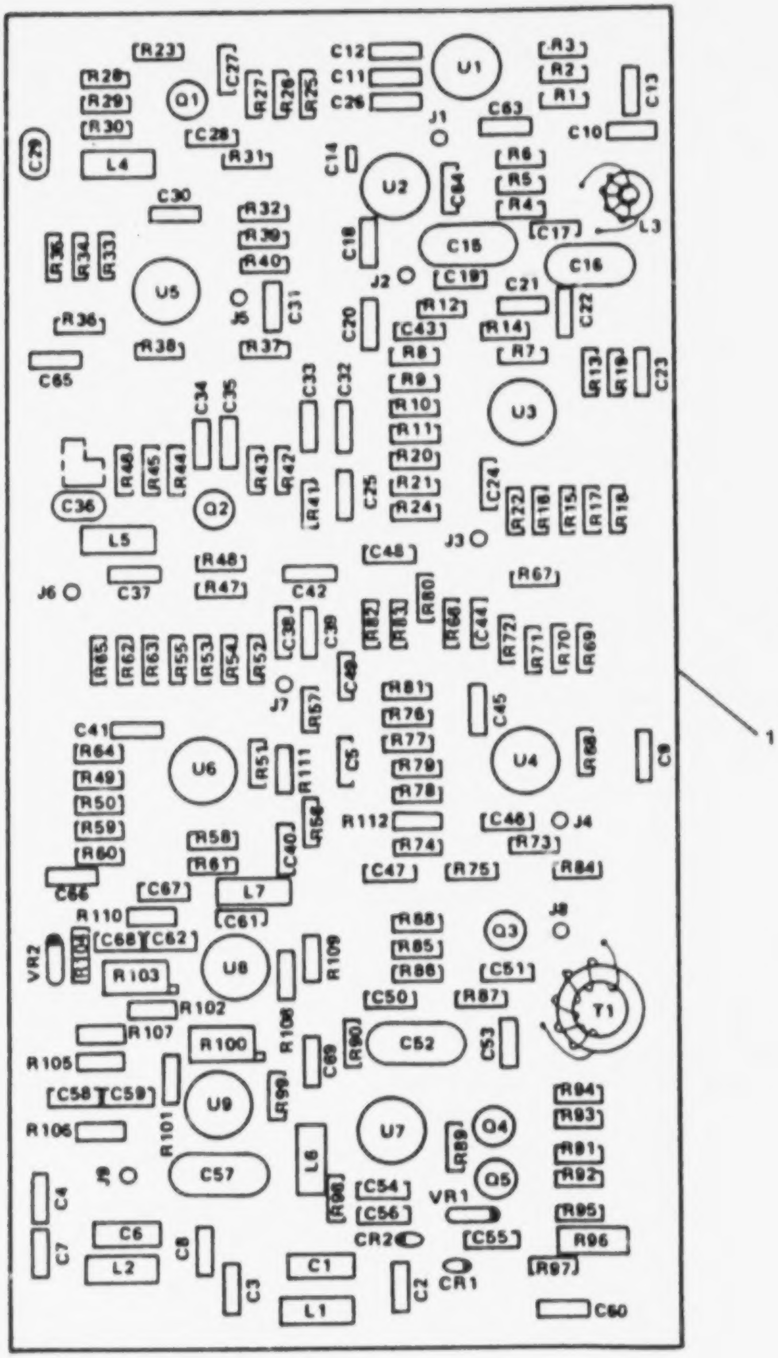


Figure C-41. Log Amplifier Circuit Card Assembly (A10A1)
(Sheet 1 of 2)

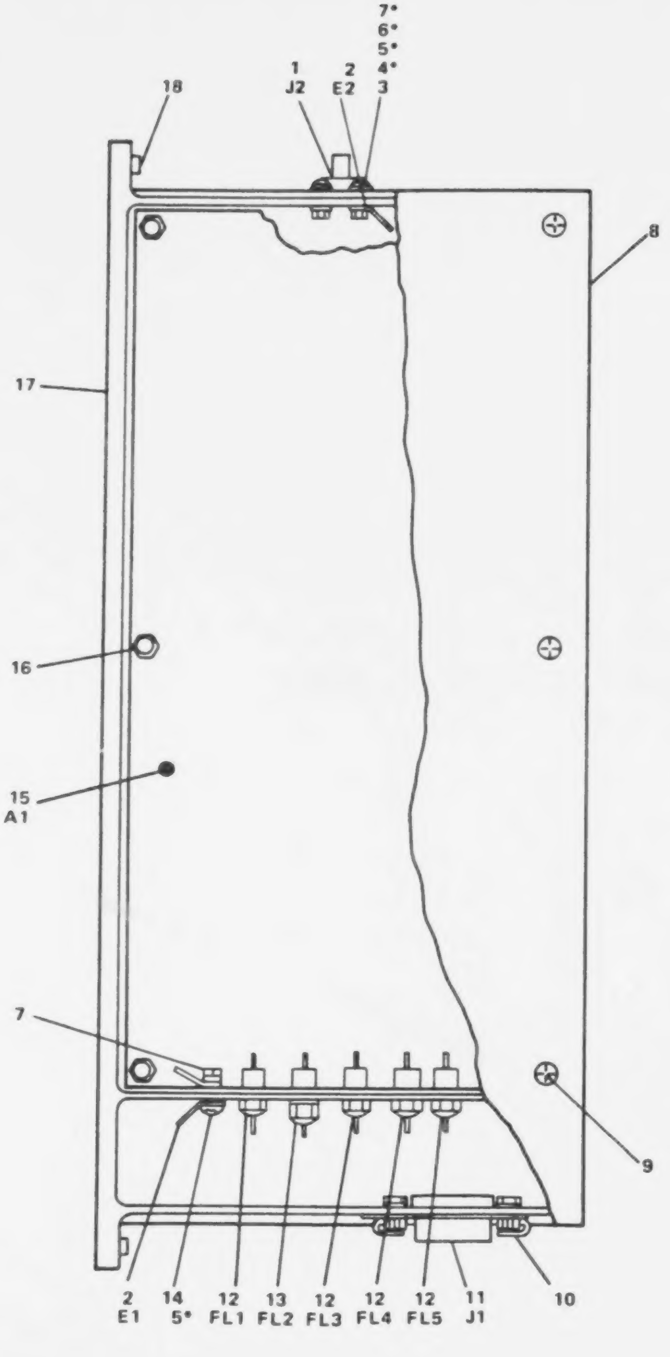
LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	11	C42	5	L7	15	R38	44	R81	31		
CR2	11	C43	5	Q1	17	R39	24	R82	44		
C1	3	C44	5	Q2	17	R40	29	R83	44		
C2	4	C45	5	Q3	18	R41	26	R84	24		
C3	4	C46	5	Q4	19	R42	27	R85	27		
C4	4	C47	5	Q5	19	R43	35	R86	35		
C5	5	C48	5	R1	27	R44	38	R87	38		
C6	3	C49	5	R2	22	R45	22	R88	25		
C7	4	C50	5	R3	23	R46	33	R89	34		
C8	4	C51	5	R4	22	R47	31	R90	21		
C9	4	C52	10	R5	29	R48	55	R91	43		
C10	4	C53	5	R6	23	R49	44	R92	21		
C11	5	C54	5	R7	44	R50	44	R93	20		
C12	5	C55	5	R8	44	R51	44	R94	43		
C13	5	C56	5	R9	41	R52	44	R95	30		
C14	9	C57	8	R10	40	R53	40	R96	45		
C15	10	C58	5	R11	30	R54	41	R97	36		
C16	10	C59	5	R12	24	R55	30	R98	34		
C17	5	C60	5	R13	44	R56	24	R99	39		
C18	5	C61	5	R14	44	R57	27	R100	47		
C19	4	C62	5	R15	44	R58	44	R101	42		
C20	5	C63	5	R16	44	R59	41	R102	37		
C21	5	C64	5	R17	41	R60	38	R103	46		
C22	5	C65	5	R18	38	R61	28	R104	41		
C23	5	C66	5	R19	28	R62	44	R105	23		
C24	5	C67	4	R20	44	R63	44	R106	23		
C25	5	C68	4	R21	44	R64	24	R107	30		
C26	5	C69	4	R22	24	R65	30	R108	34		
C27	5	J1	2	R23	20	R66	31	R109	23		
C28	5	J2	2	R24	32	R67	24	R110	23		
C29	7	J3	2	R25	22	R68	44	R111	44		
C30	5	J4	2	R26	27	R69	44	R112	28		
C31	5	J5	2	R27	35	R70	40	T1	48		
C32	5	J6	2	R28	38	R71	41	U1	49		
C33	5	J7	2	R29	22	R72	30	U2	49		
C34	5	J8	2	R30	23	R73	44	U3	50		
C35	5	J9	2	R31	23	R74	44	U6	50		
C36	6	L1	12	R32	44	R75	31	U7	51		
C37	5	L2	12	R33	44	R76	44	U8	52		
C38	5	L3	16	R34	38	R77	44	U9	52		
C39	5	L4	12	R35	41	R78	41	VR1	53		
C40	5	L5	13	R36	28	R79	38	VR2	54		
C41	5	L6	14	R37	44	R80	24				

Figure C-41. Log Amplifier Circuit Card Assembly (A10A1) (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - LOG AMPLIFIER CIRCUIT CARD ASSY (A10A1) 10-123524-1		
C-41	1	XA		12-123523-1	28815	PRINTED WIRING BOARD	EA	1
C-41	2	XDDZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	9
C-41	3	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-41	4	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	11
C-41	5	PADZZ	5910-00-115-8456	M39014/02-1258	81349	CAPACITOR	EA	49
C-41	6	PADZZ	5910-01-038-7892	CMR03E270JOYP	81349	CAPACITOR	EA	1
C-41	7	PADZZ	5910-01-087-6360	CMR03F101JOYP	81349	CAPACITOR	EA	1
C-41	8	PADZZ	5910-01-029-8907	CMR06F471JODP	81349	CAPACITOR	EA	1
C-41	9	PADZZ	5910-01-042-2367	RPE110X7R681K100V	72982	CAPACITOR	EA	1
C-41	10	PADZZ	5910-01-519-2721	CMR06F102JODP	81349	CAPACITOR	EA	3
C-41	11	PADZZ	5961-00-163-7231	JANTX1N5711	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-41	12	PADZZ	5950-01-064-6335	M39010/02A1R0KP	81349	COIL	EA	3
C-41	13	PADZZ		M39010/02A5R6KP	81349	COIL	EA	1
C-41	14	PADZZ		M39010/02A6R8KP	81349	COIL	EA	1
C-41	15	PADZZ		M39010/03A220KP	81349	COIL	EA	1
C-41	16	PADZZ	5950-01-065-6435	12-124349-1	28815	COIL,RF	EA	1
C-41	17	PADZZ	5961-00-836-6663	JANTX2N918	81349	TRANSISTOR	EA	2
C-41	18	PADZZ	5961-00-858-3826	JANTX2N2222A	81349	TRANSISTOR	EA	1
C-41	19	PADZZ	5961-00-438-0598	JANTX2N3251A	81349	TRANSISTOR	EA	2
C-41	20	PADZZ	5905-00-141-1855	RCR07G100JP	81349	RESISTOR	EA	2
C-41	21	PADZZ	5905-00-106-3668	RCR07G220JP	81349	RESISTOR	EA	2
C-41	22	PADZZ	5905-00-158-9872	RCR07G390JP	81349	RESISTOR	EA	5
C-41	23	PADZZ	5905-00-141-1183	RCR07G101JP	81349	RESISTOR	EA	8
C-41	24	PADZZ	5905-00-141-1888	RCR07G201JP	81349	RESISTOR	EA	8
C-41	25	PADZZ	5905-00-141-1895	RCR07G241JP	81349	RESISTOR	EA	1
C-41	26	PADZZ	5905-00-104-8370	RCR07G361JP	81349	RESISTOR	EA	1
C-41	27	PADZZ		RCR07C511JP	81349	RESISTOR	EA	5
C-41	28	PADZZ	5905-00-105-7768	RCR07G561JP	81349	RESISTOR	EA	4
C-41	29	PADZZ	5905-00-136-3891	RCR07G621JP	81349	RESISTOR	EA	2
C-41	30	PADZZ	5905-00-135-6046	RCR07G681JP	81349	RESISTOR	EA	6
C-41	31	PADZZ		RCR07G751JP	81349	RESISTOR	EA	4
C-41	32	PADZZ	5905-00-141-2144	RCR07G821JP	81349	RESISTOR	EA	1
C-41	33	PADZZ	5905-00-485-4554	RCR07G911JP	81349	RESISTOR	EA	1
C-41	34	PADZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	3
C-41	35	PADZZ	5905-00-997-2192	RCR07G202JP	81349	RESISTOR	EA	3
C-41	36	PADZZ	5905-00-105-7764	RCR07G222JP	81349	RESISTOR	EA	1
C-41	37	PADZZ	5905-00-111-4727	RCR07G272JP	81349	RESISTOR	EA	1

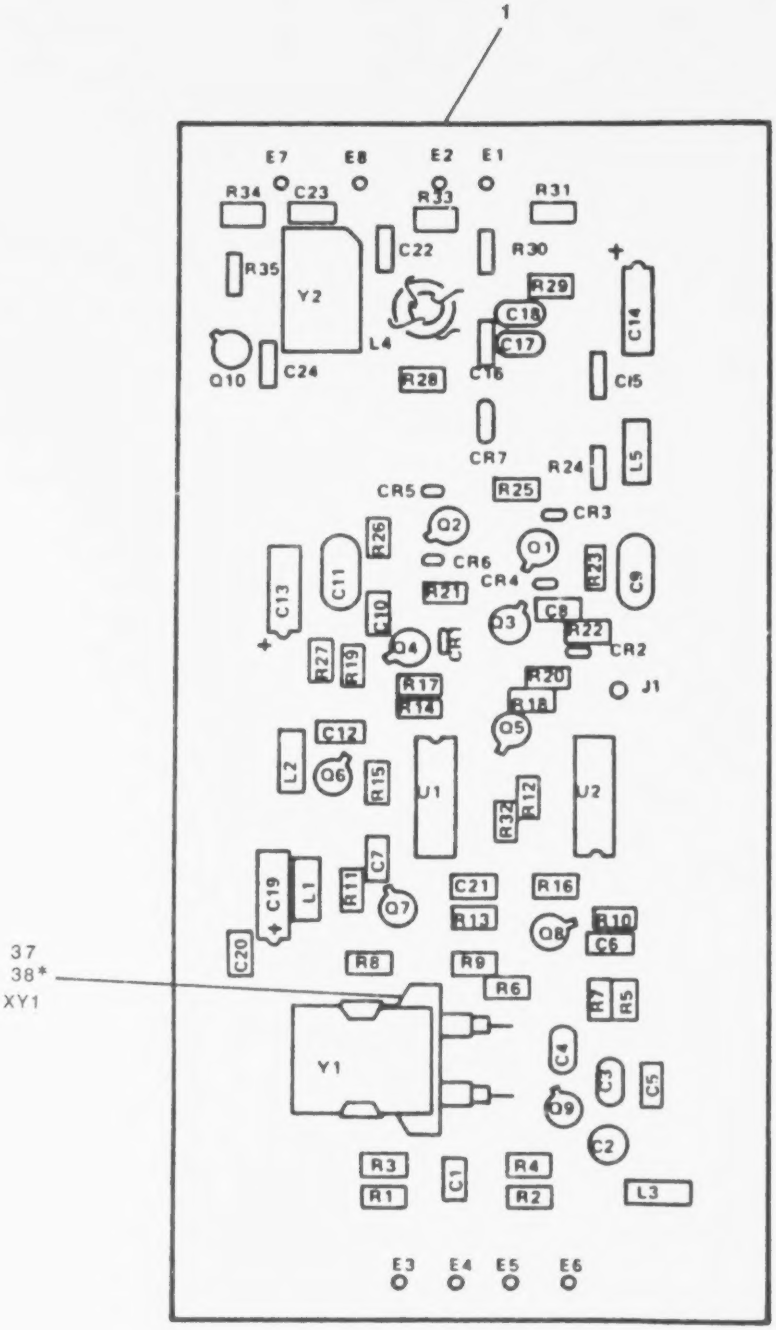
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-41	38	PADZZ	5905-00-141-0743	RCR07G392JP	81349	RESISTOR	EA	7
C-41	39	PADZZ	5905-00-114-0711	RCR07G472JP	81349	RESISTOR	EA	1
C-41	40	PADZZ	5905-00-111-1679	RCR07G512JP	81349	RESISTOR	EA	3
C-41	41	PADZZ	5905-00-106-3666	RCR07G103JP	81349	RESISTOR	EA	8
C-41	42	PADZZ	5905-00-106-9356	RCR07G203JP	81349	RESISTOR	EA	1
C-41	43	PADZZ	5905-00-150-5414	RNR55C4750FP	81349	RESISTOR	EA	2
C-41	44	PADZZ	5905-00-137-4824	RNR55C4991FP	81349	RESISTOR	EA	28
C-41	45	PADZZ	5905-00-813-5892	RCR20G391JP	81349	RESISTOR	EA	1
C-41	46	PADZZ	5905-01-088-2787	M39015/3-004XP	81349	RESISTOR	EA	1
C-41	47	PADZZ	5905-01-077-9821	M39015/3-010XP	81349	RESISTOR	EA	1
C-41	48	PADZZ	5950-01-064-5730	12-124347-1	28815	TRANSFORMER,RF	EA	1
C-41	49	PADZZ	5962-01-107-9039	1590/BGBJC	04713	MICROCIRCUIT,LINEAR	EA	2
C-41	50	PADZZ	5962-01-059-7852	CA3049T3	18714	MICROCIRCUIT,LINEAR	EA	4
C-41	51	PADZZ	5962-01-215-2356	CA3028B	18714	MICROCIRCUIT,LINEAR	EA	1
C-41	52	PADZZ	5962-00-167-6330	M38510/10101BGC	81349	MICROCIRCUIT	EA	1
C-41	53	PADZZ	5961-00-595-9264	JANTX 1N4100	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-41	54	PADZZ	5961-01-012-8198	JANTX 1N4626	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-41	55	PADZZ	5905-00-141-1885	RCR07G151JP	81349	RESISTOR	EA	1



*DENOTES HIDDEN PART

Figure C-42. RF Test Generator Electronic Components Equipment Assembly (All)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - RF TEST GENERATOR ELECTRONIC COMPONENTS EQUIPMENT ASSY (A11) 10-123495-1		
C-42	1	XDDDD		1951-1-4201-1	15942	CHASSIS,ELEC EQUIP	EA	1
C-42	2	XA		1951-1-4070-2	15942	CHASSIS,ELEC EQUIP	EA	1
C-42	3	XDDZZ	5310-01-010-6538	FE-440	46384	NUT,SLF-LKG,CL	EA	2
C-42	4	XDDZZ		1951-1-3021-1	15942	COVER,ACCESS	EA	2
C-42	5	PADDD	5865-01-106-0930	10-123494-2	28815	CCA,RF TEST GENERATOR (SEE FIG C-43)	EA	1
C-42	6	XDDZZ	5935-00-079-8636	DE51224-1	71468	RETAINER,SLIDING	EA	1
C-42	7	PADZZ	5915-01-034-2934	1270-066	72982	FILTER,RFI	EA	1
C-42	8	PADZZ	5915-01-045-8126	51-712-003	33095	FILTER,RFI	EA	4
C-42	9	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	1
C-42	10	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2
C-42	11	XDDZZ	5307-00-411-4484	9723-SS-0440-7	06540	POST,ELEC-MECH EQUIP	EA	6
C-42	12	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	3
C-42	13	PADZZ	5935-00-466-3394	M24308/4-1	81349	CONNECTOR	EA	1
C-42	14	XDDZZ	5305-00-210-5162	NAS1189E04P43L	80205	SCREW	EA	12
C-42	15	XDDZZ	5305-00-054-5637	MS51957-3	96906	SCREW	EA	1
C-42	16	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	4
C-42	17	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	7
C-42	18	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	3
C-42	19	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	4
C-42	20	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	5



*DENOTES HIDDEN PART

Figure C-43. RF Test Generator Circuit Card Assembly (A11A1) (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	39	Q8	45								
CR2	39	Q9	44								
CR3	39	Q10	42								
CR4	40	R1	13								
CR5	39	R2	14								
CR6	40	R3	15								
CR7	41	R4	12								
C1	3	R5	17								
C2	11	R6	18								
C3	4	R7	16								
C4	5	R8	19								
C5	3	R9	19								
C6	3	R10	20								
C7	3	R11	21								
C8	3	R12	17								
C9	6	R13	20								
C10	3	R14	22								
C11	7	R15	15								
C12	3	R16	23								
C13	10	R17	24								
C14	10	R18	25								
C15	3	R19	24								
C16	3	R20	25								
C17	8	R21	24								
C18	9	R22	24								
C19	10	R23	26								
C20	3	R24	27								
C21	3	R25	15								
C22	3	R26	26								
C23	3	R27	27								
C24	3	R28	15								
J1	2	R29	28								
L1	32	R30	21								
L2	32	R31	28								
L3	33	R32	15								
L4	34	R33	30								
L5	32	R34	31								
Q1	42	R35	29								
Q2	43	U1	46								
Q3	43	U2	47								
Q4	43	XY1	37								
Q5	42	Y1	36								
Q6	44	Y2	35								
Q7	43										

Figure C-43. RF Test Generator Circuit Card Assembly (A11A1)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - RF TEST GENERATOR CIRCUIT CARD ASSEMBLY (A11A1) 10-123494-1		
C-43	1	XA		12-123493-1	28815	PRINTED WIRING BOARD	EA	1
C-43	2	XDDZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	1
C-43	3	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	14
C-43	4	PADZZ	5910-01-060-9518	CMR03E390J0YP	81349	CAPACITOR	EA	1
C-43	5	PADZZ		CMR03F151J0YP	81349	CAPACITOR	EA	1
C-43	6	PADZZ	5910-01-029-8907	CMR06F471J0DP	81349	CAPACITOR	EA	1
C-43	7	PADZZ	5910-01-043-5772	CMR05F271J0DP	81349	CAPACITOR	EA	1
C-43	8	PADZZ	5910-01-028-9216	CMR03C150D0AP	81349	CAPACITOR	EA	1
C-43	9	PADZZ		CMR03E220D0AP	81349	CAPACITOR	EA	1
C-43	10	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	3
C-43	11	PADZZ	5910-00-170-9557	8052	91293	CAPACITOR	EA	1
C-43	12	PADZZ	5905-00-104-8358	RCR07G822JP	81349	RESISTOR	EA	1
C-43	13	PADZZ	5905-00-104-8369	RCR07G362JP	81349	RESISTOR	EA	1
C-43	14	PADZZ	5905-00-110-7622	RCR07G682JP	81349	RESISTOR	EA	1
C-43	15	PADZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	5
C-43	16	PADZZ	5905-00-106-1356	RCR07G152JP	81349	RESISTOR	EA	1
C-43	17	PADZZ	5905-00-106-3666	RCR07G103JP	81349	RESISTOR	EA	2
C-43	18	PADZZ	5905-00-932-5095	RCR07G332JP	81349	RESISTOR	EA	1
C-43	19	PADZZ	5905-00-141-2002	RCR07G301JP	81349	RESISTOR	EA	2
C-43	20	PADZZ	5905-00-141-1887	RCR07G181JP	81349	RESISTOR	EA	2
C-43	21	PADZZ	5905-00-141-1883	RCR07G121JP	81349	RESISTOR	EA	2
C-43	22	PADZZ	5905-00-105-7764	RCR07G222JP	81349	RESISTOR	EA	1
C-43	23	PADZZ	5905-00-121-9920	RCR07G303JP	81349	RESISTOR	EA	1
C-43	24	PADZZ	5905-00-141-1888	RCR07G201JP	81349	RESISTOR	EA	4
C-43	25	PADZZ	5905-00-120-9154	RCR07G471JP	81349	RESISTOR	EA	2
C-43	26	PADZZ	5905-00-141-1895	RCR07G241JP	81349	RESISTOR	EA	2
C-43	27	PADZZ	5905-00-110-0388	RCR07G104JP	81349	RESISTOR	EA	2
C-43	28	PADZZ	5905-00-890-5637	RCR07G750JP	81349	RESISTOR	EA	2
C-43	29	PADZZ	5905-00-131-9729	RCR07G302JP	81349	RESISTOR	EA	1
C-43	30	PADZZ	5905-00-136-3890	RCR07G513JP	81349	RESISTOR	EA	1
C-43	31	PADZZ	5905-00-141-0743	RCR07G392JP	81349	RESISTOR	EA	1
C-43	32	PADZZ	5950-01-066-0922	M39010/02A3R9KP	81349	COIL	EA	3
C-43	33	PADZZ	5950-01-065-6434	M39010/03A181KP	81349	COIL	EA	1
C-43	34	PADZZ	5950-01-064-4799	12-124359-1	28815	COIL,RF	EA	1
C-43	35	PADZZ		238-3187	27802	OSCILLATOR,CRYSTAL	EA	1
C-43	36	PADZZ	5955-00-892-3812	CR-19A/U2-000000	81349	CRYSTAL UNIT,QUARTZ	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-43	37	PADZZ	5935-00-761-6901	8000DG2-5	91506	SOCKET,PLUG-IN ELECTRONIC COMPNTS	EA	1
C-43	38	XDDZZ	5320-00-117-6814	MS20470AD3-3	96906	RIVET	EA	22
C-43	39	PADZZ	5961-00-163-7231	JANTX1N5711	81349	SEMICONDUCTOR DEVICE, DIODE	EA	4
C-43	40	PADZZ	5961-00-494-4915	JANTX1N4148	81349	SEMICONDUCTOR DEVICE, DIODE	EA	2
C-43	41	PADZZ	5961-01-065-6486	TX-0112	54893	SEMICONDUCTOR DEVICE, DIODE	EA	1
C-43	42	PADZZ	5961-00-858-3826	JANTX2N2222A	81349	TRANSISTOR	EA	3
C-43	43	PADZZ	5961-00-438-0598	JANTX2N3251A	81349	TRANSISTOR	EA	4
C-43	44	PADZZ	5961-00-022-5666	JANTX2N2907A	81349	TRANSISTOR	EA	2
C-43	45	PADZZ	5961-00-836-6663	JANTX2N918	81349	TRANSISTOR	EA	1
C-43	46	PADZZ	5962-01-090-0727	M38510/02501BCX	81349	MICROCIRCUIT,DIGITAL	EA	1
C-43	47	PADZZ	5962-00-318-2223	M38510/00104BCB	81349	MICROCIRCUIT	EA	1

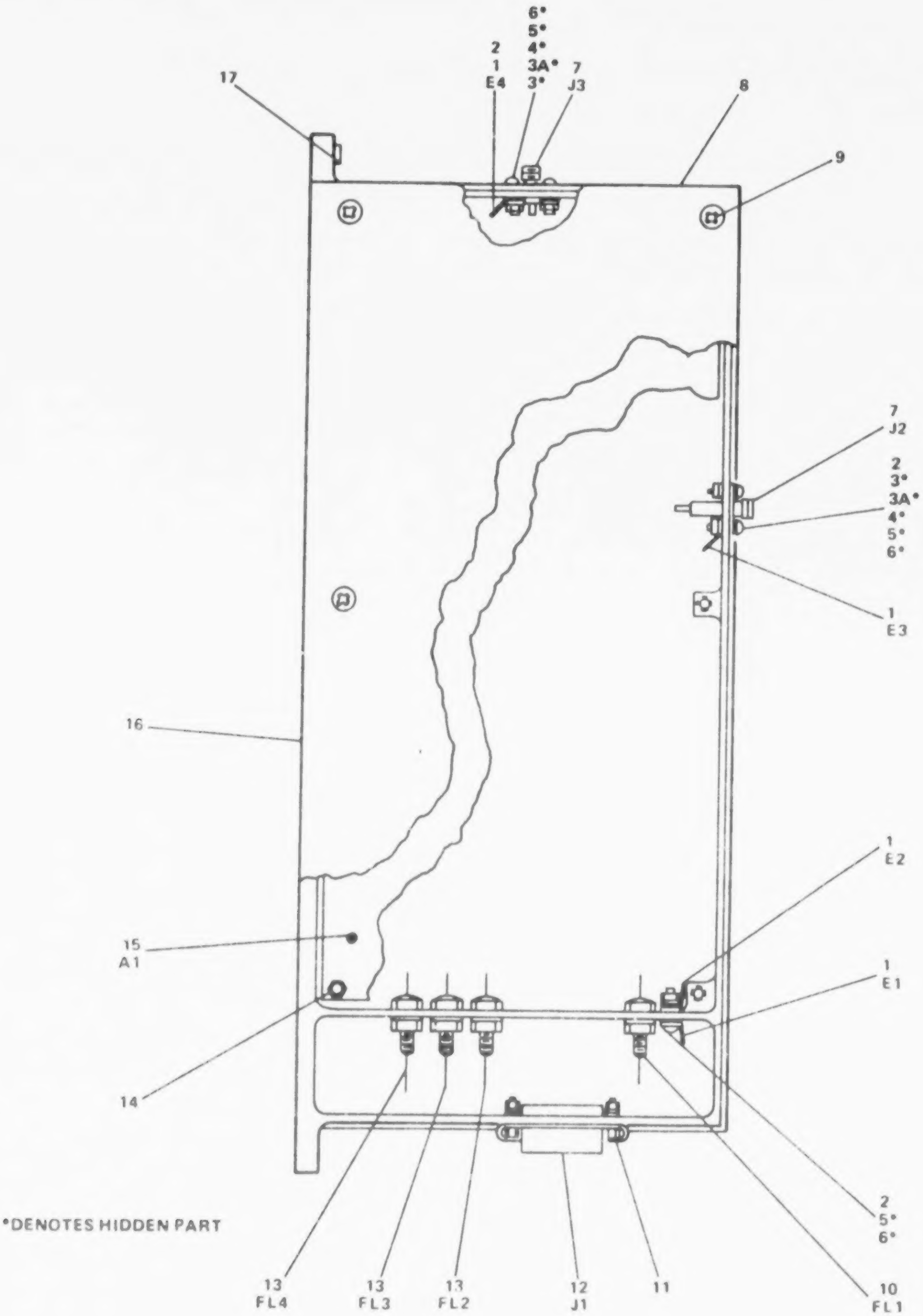
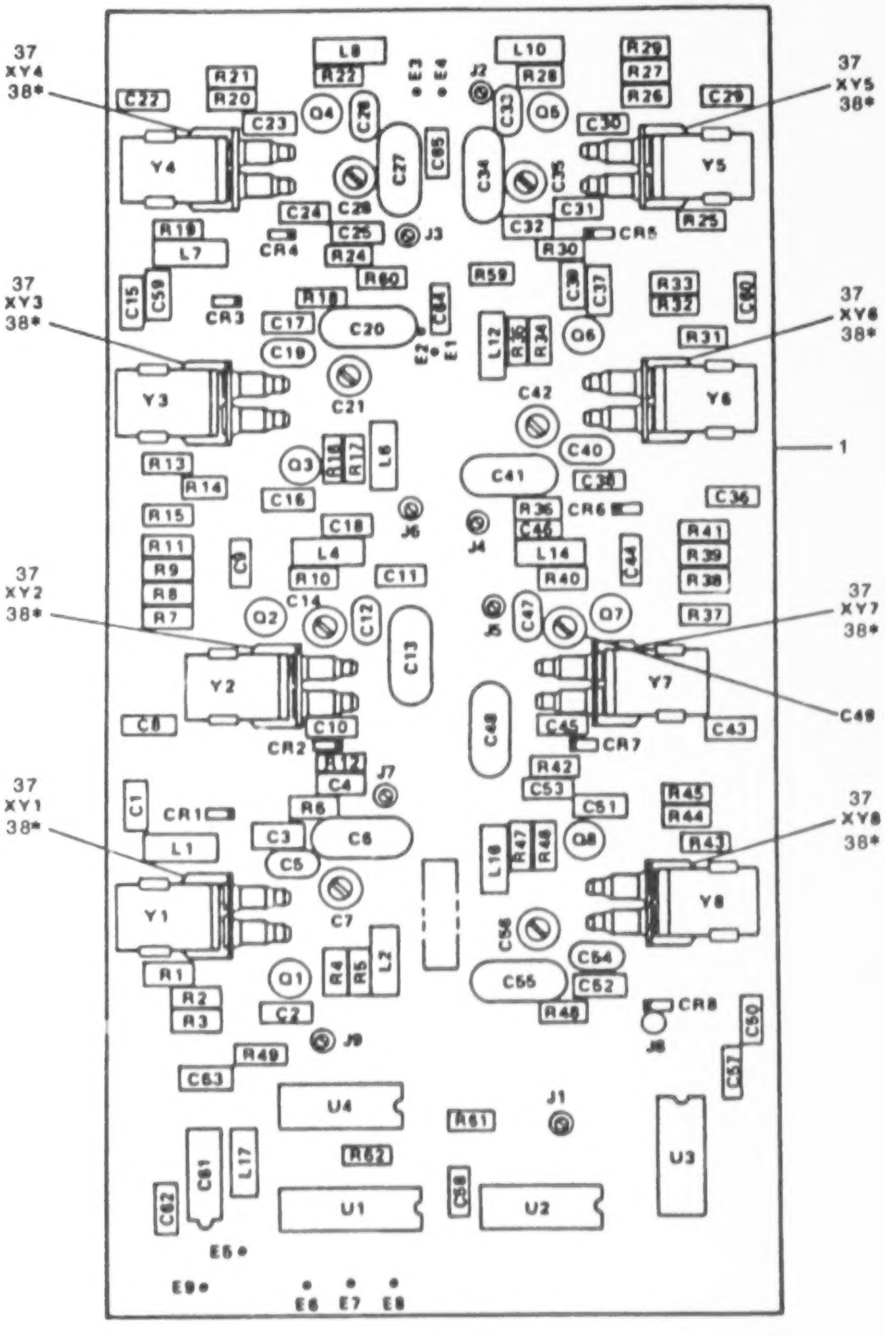


Figure C-44. RF Oscillator Electronic Components Assembly (A12)

(1) ILLUSTRATION FIG NO	(1) ILLUSTRATION ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - OSCILLATOR ELECTRONIC COMPONENTS ASSY (A12) 1951-1-4128-1		
C-44	1	XDDZZ		1951-1-3021-1	15942	COVER,ACCESS	EA	2
C-44	2	XDDZZ		1951-1-4193-1	15942	CHASSIS,ELEC,EQUIP	EA	1
C-44	3	PADDD	5865-01-248-7495	1951-1-4127-3	15942	PRINTED WIRING BOARD	EA	1
C-44	4	XDDZZ	5307-00-411-4484	9723-SS-0440-7	06540	POST,ELEC-MECH EQUIP	EA	6
C-44	5	XDDZZ	5305-01-070-2969	NAS1189E04P4B	80205	SCREW	EA	12
C-44	6	XDDZZ	5935-00-079-8636	DE51224-1	71468	RETAINER,SLIDING	EA	1
C-44	7	PADZZ	5915-01-034-2954	1270-066	72982	FILTER,RFI	EA	3
C-44	8	PADZZ	5935-00-466-3394	M24308/4-1	81349	CONNECTOR	EA	1
C-44	9	PADZZ	5915-01-045-6126	51-712-003	33095	FILTER,RF	EA	1
C-44	10	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	4
C-44	11	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	9
C-44	12	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	9
C-44	13	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	12
C-44	14	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	6
C-44	15	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	9
C-44	16	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	2
C-44	17	XDDZZ		4500	12515	CABLE,RF	EA	1
C-44	18	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2



*DENOTES HIDDEN PART

Figure C-45. Oscillator Circuit Card Assembly (A12A1)
(Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	40	C36	3	L7	21	R31	13				
CR2	40	C37	3	L8	20	R32	19				
CR3	40	C38	3	L10	24	R33	14				
CR4	40	C39	3	L12	23	R34	15				
CR5	40	C40	7	L14	25	R35	16				
CR6	40	C41	10	L16	26	R36	19				
CR7	40	C42	11	L17	39	R37	13				
CR8	40	C43	3	Q1	41	R38	19				
C1	3	C44	3	Q2	41	R39	14				
C2	3	C45	3	Q3	41	R40	15				
C3	3	C46	3	Q4	41	R41	16				
C4	3	C47	8	Q5	41	R42	19				
C5	8	C48	10	Q6	41	R43	13				
C6	9	C49	11	Q7	41	R44	19				
C7	11	C50	3	Q8	41	R45	14				
C8	3	C51	3	R1	13	R46	15				
C9	3	C52	3	R2	19	R47	16				
C10	3	C53	3	R3	14	R48	19				
C11	3	C54	8	R4	15	R49	19				
C12	7	C55	10	R5	16	R59	17				
C13	10	C56	11	R6	19	R60	17				
C14	11	C57	3	R7	13	R61	19				
C15	3	C58	3	R8	18	R62	19				
C16	3	C59	3	R9	14	U1	42				
C17	3	C60	3	R10	15	U2	43				
C18	3	C61	5	R11	16	U3	44				
C19	6	C62	4	R12	19	U4	44				
C20	9	C63	4	R13	13	XY1	37				
C21	11	C64	3	R14	28	XY2	37				
C22	3	C65	3	R15	14	XY3	37				
C23	3	J1	2	R16	15	XY4	37				
C24	3	J2	2	R17	16	XY5	37				
C25	3	J3	2	R18	19	XY6	37				
C26	7	J4	2	R19	13	XY7	37				
C27	10	J5	2	R20	27	XY8	37				
C28	11	J6	2	R21	14	Y1	29				
C29	3	J7	2	R22	15	Y2	31				
C30	3	J8	2	R24	19	Y3	30				
C31	3	J9	2	R25	13	Y4	32				
C32	3	L1	21	R26	28	Y5	33				
C33	8	L2	22	R27	14	Y6	34				
C34	9	L4	23	R28	15	Y7	35				
C35	11	L6	22	R30	19	Y8	36				

Figure C-45. Oscillator Circuit Card Assembly (A12A1)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - OSCILLATOR CIRCUIT CARD ASSY (A12A1) 1951-1-4127-3		
C-45	1	XA		1951-1-4126-1	15942	PRINTED WIRING BOARD	EA	1
C-45	2	XDDZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	9
C-45	3	PADZZ	5910-01-010-6473	M39014/01-1495	81349	CAPACITOR	EA	38
C-45	4	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	2
C-45	5	PADZZ	5910-00-996-0667	M39003/01-2511	81349	CAPACITOR	EA	1
C-45	6	PADZZ		CCR09CG750FP	81349	CAPACITOR	EA	1
C-45	7	PADZZ		CCR09CG680FP	81349	CAPACITOR	EA	3
C-45	8	PADZZ		CCR09CG620FP	81349	CAPACITOR	EA	4
C-45	9	PADZZ	5910-00-121-5986	CMR05F391JODP	81349	CAPACITOR	EA	3
C-45	10	PADZZ	5910-01-029-8907	CMR06F471JODP	81349	CAPACITOR	EA	5
C-45	11	PADZZ	5910-01-019-3858	8053	91293	CAPACITOR	EA	8
C-45	12	PADZZ	5905-00-136-8431	RCR07G432JP	81349	RESISTOR	EA	1
C-45	13	PADZZ	5905-00-141-1869	RCR07G510JP	81349	RESISTOR	EA	8
C-45	14	PADZZ	5905-00-104-8369	RCR07G362JP	81349	RESISTOR	EA	8
C-45	15	PADZZ	5905-00-110-7622	RCR07G682JP	81349	RESISTOR	EA	8
C-45	16	PADZZ	5905-00-131-9729	RCR07G302JP	81349	RESISTOR	EA	6
C-45	17	PADZZ	5905-00-115-7953	RCR07G180JP	81349	RESISTOR	EA	2
C-45	18	PADZZ	5905-00-119-8855	RCR07G112JP	81349	RESISTOR	EA	1
C-45	19	PADZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	15
C-45	20	PADZZ	5950-01-248-7475	5050030-1	57958	COIL,RF	EA	1
C-45	21	PADZZ	5950-01-182-2527	M39010/03A220KP	81349	COIL	EA	2
C-45	22	PADZZ	5950-01-248-7476	5050030-2	57958	COIL,RF	EA	2
C-45	23	PADZZ	5950-01-248-7477	5050030-3	57958	COIL,RF	EA	2
C-45	24	PADZZ	5950-01-248-7478	5050030-6	57958	COIL,RF	EA	1
C-45	25	PADZZ	5950-01-248-7479	5050030-4	57958	COIL,RF	EA	1
C-45	26	PADZZ	5950-01-248-7480	5050030-5	57958	COIL,RF	EA	1
C-45	27	PADZZ	5905-00-106-1356	RCR07G152JP	81349	RESISTOR	EA	1
C-45	28	PADZZ	5905-00-131-1255	RCR07G122JP	81349	RESISTOR	EA	2
C-45	29	PADZZ	5955-01-065-6438	CR-79/U18.750000	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	30	PADZZ	5955-01-065-8064	CR-79/U16-500000	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	31	PADZZ	5955-01-122-2515	CR-79/U17-837500	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	32	PADZZ	5955-01-107-5273	CR-79/U20-337500	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	33	PADZZ	5955-01-066-3606	CR-79/U8.750000M	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	34	PADZZ	5955-01-066-2008	CR-79/U16.250000	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	35	PADZZ	5955-01-067-2557	CR-79/U13.750000	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	36	PADZZ	5955-01-065-6439	CR-79/U11.250000	81349	CRYSTAL,UNIT,QUARTZ	EA	1
C-45	37	XDDZZ	5935-00-154-0338	8004-1G23-5	91506	SOCKET	EA	8

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-45	38	XDDZZ	5320-00-721-5245	MS16535-76	96906	RIVET	EA	16
C-45	39	PADZZ	5950-01-064-6335	M39010/02-A1R0KP	81349	COIL	EA	1
C-45	40	PADZZ	5961-00-163-7231	JANTX1N5711	81349	SEMICONDUCTOR DEVICE,DIODE	EA	8
C-45	41	PADZZ	5961-00-022-5666	JANTX2N2907A	81349	TRANSISTOR	EA	8
C-45	42	PADZZ	5962-00-302-3963	M38510/30703BEX	81349	MICROCIRCUIT,DIGITAL	EA	1
C-45	43	PADZZ	5962-00-341-0544	M38510/00105BCB	81349	MICROCIRCUIT	EA	1
C-45	44	PADZZ	5962-00-361-8732	M38510/00801BCB	81349	MICROCIRCUIT	EA	2

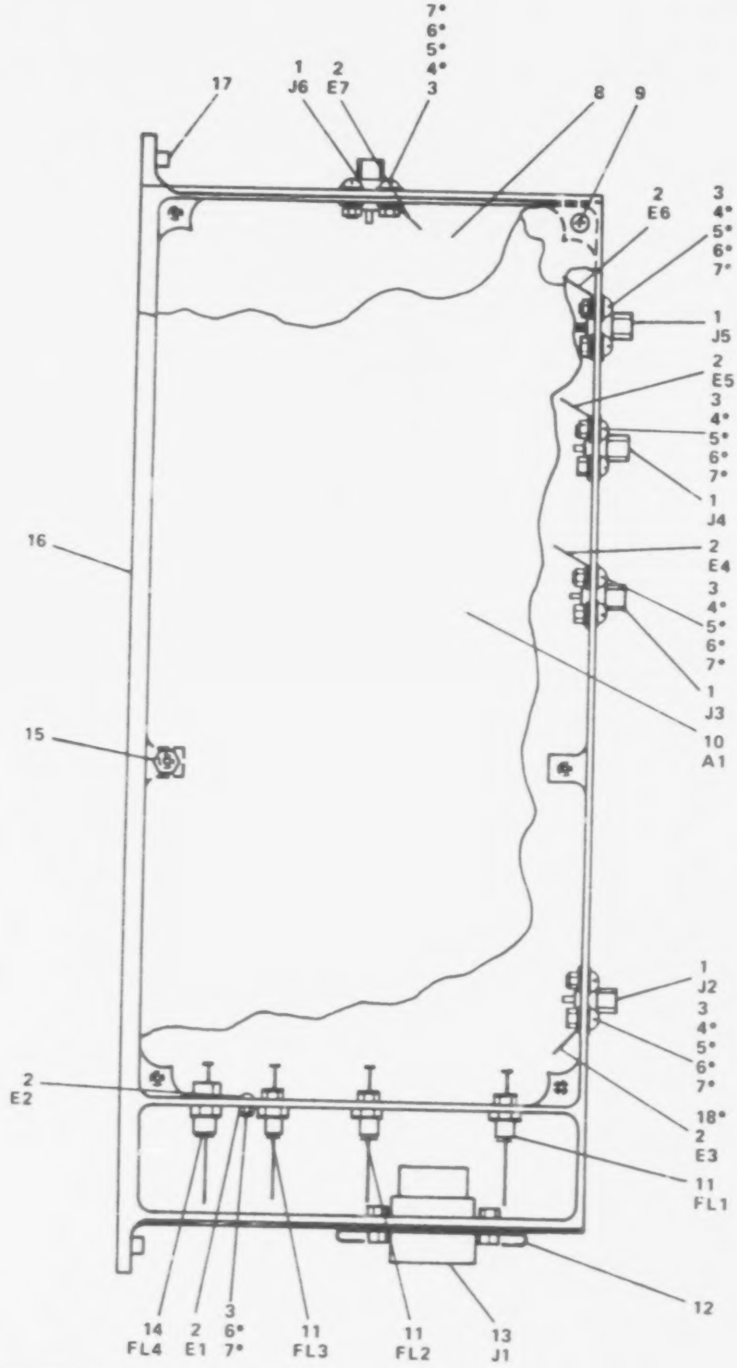


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Figure C-46. Frequency Converter Electronic Components Assembly (A13)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - FREQUENCY CONVERTER ELECTRONIC COMPONENTS ASSY (A13) 10-123505-1		
C-46		PADDD	5865-01-249-0379	10-123504-1	28815	FREQUENCY CONVERTER CIRCUIT CARD ASSY (SEE FIG C-47)	EA	1
C-46	1	XDDZZ		1951-1-3021-1	15942	COVER,ACCESS	EA	2
C-46	2	XDDZZ		1951-1-4194-1	15942	CHASSIS,ELEC,EQUIP	EA	1
C-46	3	XDDZZ	5935-00-079-8636	DE51224-1	71468	RETAINER,SLIDING	EA	1
C-46	4	XDDZZ	5307-00-411-4484	9723-SS-0440-7	06540	STANDOFF,HEX	EA	6
C-46	5	PADZZ	5915-01-034-2934	1270-066	72982	FILTER,RFI	EA	1
C-46	6	PADZZ	5935-00-466-3394	M24308/4-1	81349	CONNECTOR	EA	1
C-46	7	PADZZ	5915-01-045-8126	51-712-003	33095	FILTER,RFI	EA	3
C-46	8	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	7
C-46	9	PADZZ	5935-01-250-8414	50-645-6001-89	98291	CONNECTOR	EA	5
C-46	10	XDDZZ		4500	12515	CABLE,RF	EA	1
C-46	11	XDDZZ	5305-01-070-2969	NAS1189E04P4B	80205	SCREW	EA	12
C-46	12	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	21
C-46	13	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	21
C-46	14	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	35
C-46	15	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	21
C-46	16	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	7
C-46	17	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2

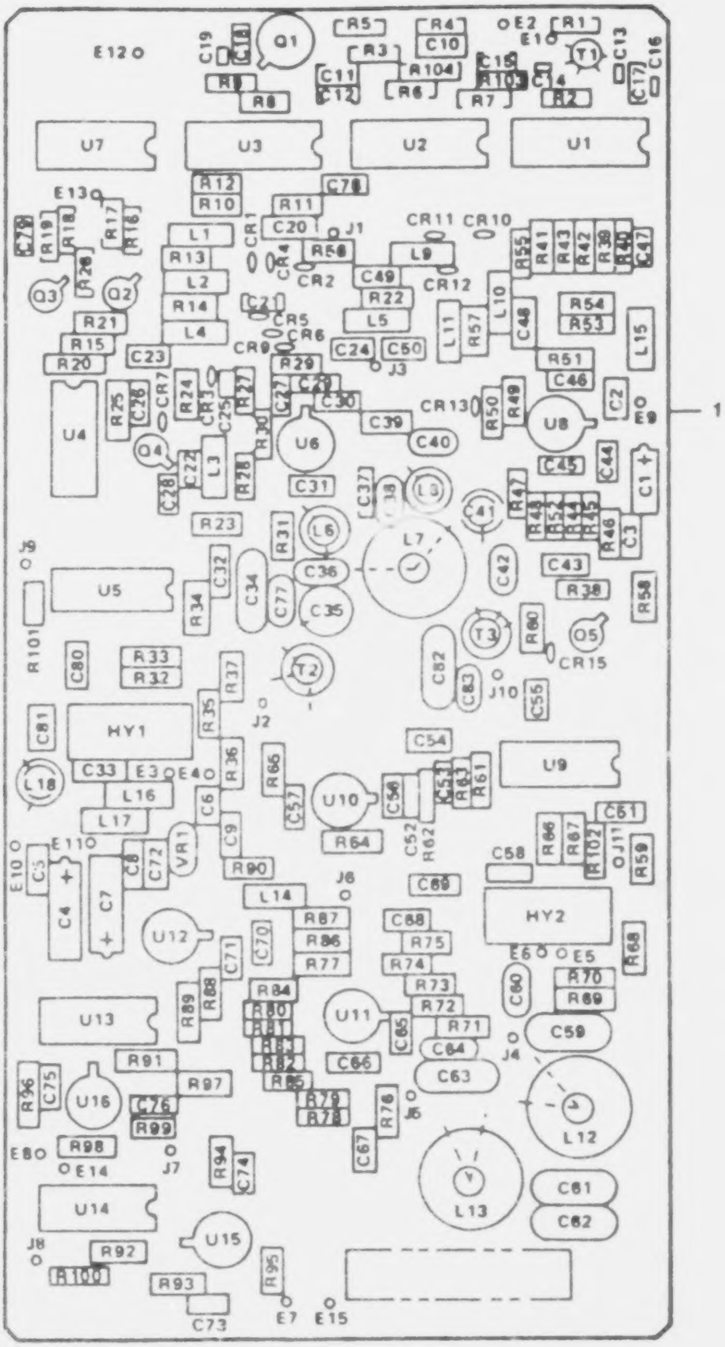

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Figure C-47. Frequency Converter Circuit Card Assembly (A13A1) (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	27	C30	15	C73	15	Q2	39	R40	65	R83	60
CR2	27	C31	15	C74	15	Q3	39	R41	62	R84	49
CR3	27	C32	15	C75	15	Q4	40	R42	61	R85	54
CR4	27	C33	16	C76	15	Q5	40	R43	55	R86	64
CR5	27	C34	22	C77	19	R1	45	R44	66	R87	65
CR6	27	C35	26	C78	16	R2	48	R45	64	R88	42
CR7	28	C36	20	C79	15	R3	45	R46	65	R89	56
CR8	29	C37	22	C80	16	R4	53	R47	64	R90	50
CR9	27	C38	19	C81	21	R5	52	R48	65	R91	59
CR10	27	C39	22	C82	22	R6	48	R49	62	R92	59
CR11	27	C40	19	C83	19	R7	56	R50	60	R93	50
CR12	27	C41	26	HY1	30	R8	48	R51	50	R94	50
CR13	28	C42	20	HY2	30	R9	48	R52	53	R95	44
CR15	28	C43	16	J1	2	R10	45	R53	64	R96	50
C1	13	C44	16	J2	2	R11	45	R54	65	R97	50
C2	15	C45	16	J3	2	R12	48	R55	52	R98	44
C3	15	C46	16	J4	2	R13	52	R56	48	R99	41
C4	14	C47	16	J5	2	R14	48	R57	52	R100	41
C5	15	C48	16	J6	2	R15	59	R58	51	R101	41
C6	15	C49	16	J7	2	R16	57	R59	42	R102	41
C7	14	C50	16	J8	2	R17	58	R60	59	R103	56
C8	15	C51	15	J9	2	R18	58	R61	59	R104	48
C9	15	C52	16	J10	2	R19	57	R62	63	T1	67
C10	16	C53	15	J11	2	R20	59	R63	63	T2	68
C11	24	C54	16	L1	31	R21	48	R64	45	T3	68
C12	16	C55	17	L2	31	R22	52	R65	45	U1	3
C13	24	C56	15	L3	31	R23	52	R66	48	U2	4
C14	24	C57	15	L4	31	R24	56	R67	48	U3	4
C15	16	C58	16	L5	31	R25	51	R68	43	U4	5
C16	24	C59	25	L6	36	R26	42	R69	47	U5	6
C17	16	C60	18	L7	37	R27	57	R70	43	U6	7
C18	16	C61	25	L8	36	R28	57	R71	46	U7	8
C19	24	C62	23	L9	31	R29	56	R72	64	U8	9
C20	16	C63	25	L10	31	R30	45	R73	65	U9	6
C21	16	C64	18	L11	31	R31	45	R74	61	U10	7
C22	16	C65	16	L12	34	R32	48	R75	62	U11	9
C23	16	C66	16	L13	34	R33	48	R76	49	U12	11
C24	16	C67	16	L14	32	R34	42	R77	55	U13	10
C25	17	C68	16	L15	33	R35	43	R78	64	U14	10
C26	15	C69	16	L16	33	R36	47	R79	65	U15	12
C27	16	C70	16	L17	33	R37	43	R80	64	U16	12
C28	16	C71	16	L18	35	R38	46	R81	65	VR1	29
C29	15	C72	16	Q1	38	R39	64	R82	62		

Figure C-47. Frequency Converter Circuit Card Assembly (A13A1)
(Sheet 2 of 2)

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP - FREQUENCY CONVERTER CIRCUIT CARD ASSY (A13A1) 10-123504-1		
C-47	1	XA		12-123503-1	15942	PRINTED WIRING BOARD	EA	1
C-47	2	XDDZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	11
C-47	3	PADZZ	5962-01-109-9019	1692/BEBJC	04713	MICROCIRCUIT,DIGITAL	EA	1
C-47	4	PADZZ		M38510/06102BEB	04713	MICROCIRCUIT	EA	2
C-47	5	PADZZ	5962-00-318-2223	M38510/00104BCB	04713	MICROCIRCUIT	EA	1
C-47	6	PADZZ		M38510/07003BCB	18324	MICROCIRCUIT	EA	2
C-47	7	PADZZ	5962-00-167-6330	M38510/10101BGC	81349	MICROCIRCUIT	EA	2
C-47	8	PADZZ	5962-00-390-7970	M38510/02005BCB	81349	MICROCIRCUIT	EA	1
C-47	9	PADZZ	5962-01-059-7852	CA3049T3	18714	MICROCIRCUIT,LINEAR	EA	2
C-47	10	PADZZ	5962-01-249-8313	16-125027-1	28815	MICROCIRCUIT,DIGITAL	EA	1
C-47	11	PADZZ	5962-00-430-2600	M38510/01307BCB	81349	MICROCIRCUIT	EA	2
C-47	12	PADZZ	5962-01-107-6925	LH0002H/883B	27014	MICROCIRCUIT,LINEAR	EA	2
C-47	13	PADZZ	5910-00-996-0667	M39003/01-2511	81349	CAPACITOR	EA	1
C-47	14	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-47	15	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	20
C-47	16	PADZZ	5910-01-010-6473	M39014/01-1495	81349	CAPACITOR	EA	34
C-47	17	PADZZ	5910-01-042-4453	M39014/01-1277	81349	CAPACITOR	EA	2
C-47	18	PADZZ	5910-01-050-6504	CMR03E510JOYP	81349	CAPACITOR	EA	2
C-47	19	PADZZ	5910-01-093-9498	CMR03E620JOYP	81349	CAPACITOR	EA	4
C-47	20	PADZZ	5910-01-087-6360	CMR03F101JOYP	81349	CAPACITOR	EA	2
C-47	21	PADZZ		CCR05CG301JR	81349	CAPACITOR	EA	1
C-47	22	PADZZ		CCR05CG561JR	81349	CAPACITOR	EA	4
C-47	23	PADZZ		CCR05CG621JR	81349	CAPACITOR	EA	1
C-47	24	PADZZ	5910-01-042-2367	8111-100X7R0681K	72982	CAPACITOR	EA	5
C-47	25	PADZZ		CCR05CG112JR	81349	CAPACITOR	EA	3
C-47	26	PADZZ	5910-00-170-9557	JMC8052	91293	CAPACITOR	EA	2
C-47	27	PADZZ	5961-01-065-7579	TX-3188	50434	SEMICONDUCTOR DEVICE, DIODE	EA	9
C-47	28	PADZZ	5961-00-494-4915	JANTX1N4148	81349	SEMICONDUCTOR DEVICE, DIODE	EA	4
C-47	29	PADZZ	5961-01-017-0992	JANTX1N4106	81349	SEMICONDUCTOR DEVICE, DIODE	EA	1
C-47	30	PADZZ	4935-00-587-1713	M6DH	14482	MIXER,DBL-BAL	EA	2
C-47	31	PADZZ	5950-01-179-7928	M39010/3-A470KP	81349	COIL	EA	8
C-47	32	PADZZ	5950-01-065-6434	M39010/03-A181KP	81349	COIL	EA	1
C-47	33	PADZZ	5950-01-064-6335	M39010/2-A1R0KP	81349	COIL	EA	3

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-47	34	PADZZ	5950-01-066-0919	12-124357-1	28815	COIL,RF	EA	2
C-47	35	PADZZ	5950-01-066-0920	12-124358-1	28815	COIL,RF	EA	1
C-47	36	PADZZ	5950-01-066-2005	12-124350-1	28815	COIL,RF	EA	2
C-47	37	PADZZ	5950-01-065-4295	12-124356-1	28815	COIL,RF	EA	1
C-47	38	PADZZ	5961-00-022-5665	JANTX2N2905A	81349	TRANSISTOR	EA	1
C-47	39	PADZZ	5961-00-022-5666	JANTX2N2907A	81349	TRANSISTOR	EA	2
C-47	40	PADZZ	5961-00-858-3826	JANTX2N2222A	81349	TRANSISTOR	EA	2
C-47	41	PADZZ	5905-00-568-7228	RCR05G102JP	81349	RESISTOR	EA	4
C-47	42	PADZZ	5905-00-028-9379	RCR07G100JP	81349	RESISTOR	EA	4
C-47	43	PADZZ	5905-00-115-7953	RCR07G180JP	81349	RESISTOR	EA	4
C-47	44	PADZZ	5905-00-158-9872	RCR07G390JP	81349	RESISTOR	EA	2
C-47	45	PADZZ	5905-00-141-1869	RCR07G510JP	81349	RESISTOR	EA	8
C-47	46	PADZZ	5905-00-126-6692	RCR07G620JP	81349	RESISTOR	EA	2
C-47	47	PADZZ	5905-00-141-1878	RCR07G680JP	81349	RESISTOR	EA	2
C-47	48	PADZZ	5905-00-141-1183	RCR07G101JP	81349	RESISTOR	EA	13
C-47	49	PADZZ	5905-00-141-1883	RCR07G121JP	81349	RESISTOR	EA	2
C-47	50	PADZZ	5905-00-141-1895	RCR07G241JP	81349	RESISTOR	EA	6
C-47	51	PADZZ	5905-00-141-2002	RCR07G301JP	81349	RESISTOR	EA	2
C-47	52	PADZZ	5905-00-120-9154	RCR07G471JP	81349	RESISTOR	EA	6
C-47	53	PADZZ	5905-00-105-7768	RCR07G561JP	81349	RESISTOR	EA	2
C-47	54	PADZZ	5905-00-126-6696	RCR07G751JP	81349	RESISTOR	EA	1
C-47	55	PADZZ	5905-00-485-4554	RCR07G911JP	81349	RESISTOR	EA	2
C-47	56	PADZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	7
C-47	57	PADZZ	5905-00-141-2146	RCR07G182JP	81349	RESISTOR	EA	4
C-47	58	PADZZ	5905-00-131-9729	RCR07G302JP	81349	RESISTOR	EA	2
C-47	59	PADZZ	5905-00-141-0743	RCR07G392JP	81349	RESISTOR	EA	4
C-47	60	PADZZ	5905-00-111-1679	RCR07G512JP	81349	RESISTOR	EA	2
C-47	61	PADZZ	5905-00-110-7622	RCR07G682JP	81349	RESISTOR	EA	2
C-47	62	PADZZ	5905-00-106-3666	RCR07G103JP	81349	RESISTOR	EA	4
C-47	63	PADZZ	5905-00-106-9356	RCR07G203JP	81349	RESISTOR	EA	2
C-47	64	PADZZ	5905-00-137-4824	RNR55C4991FP	81349	RESISTOR	EA	8
C-47	65	PADZZ	5905-01-075-2485	RLR05C1002FP	81349	RESISTOR	EA	8
C-47	66	PADZZ	5905-00-135-6046	RCR07G681JP	81349	RESISTOR	EA	1
C-47	67	PADZZ	5950-01-064-4794	12-124340-1	28815	TRANSFORMER,RF	EA	1
C-47	68	PADZZ	5950-01-082-5649	12-124348-1	28815	TRANSFORMER,RF	EA	2

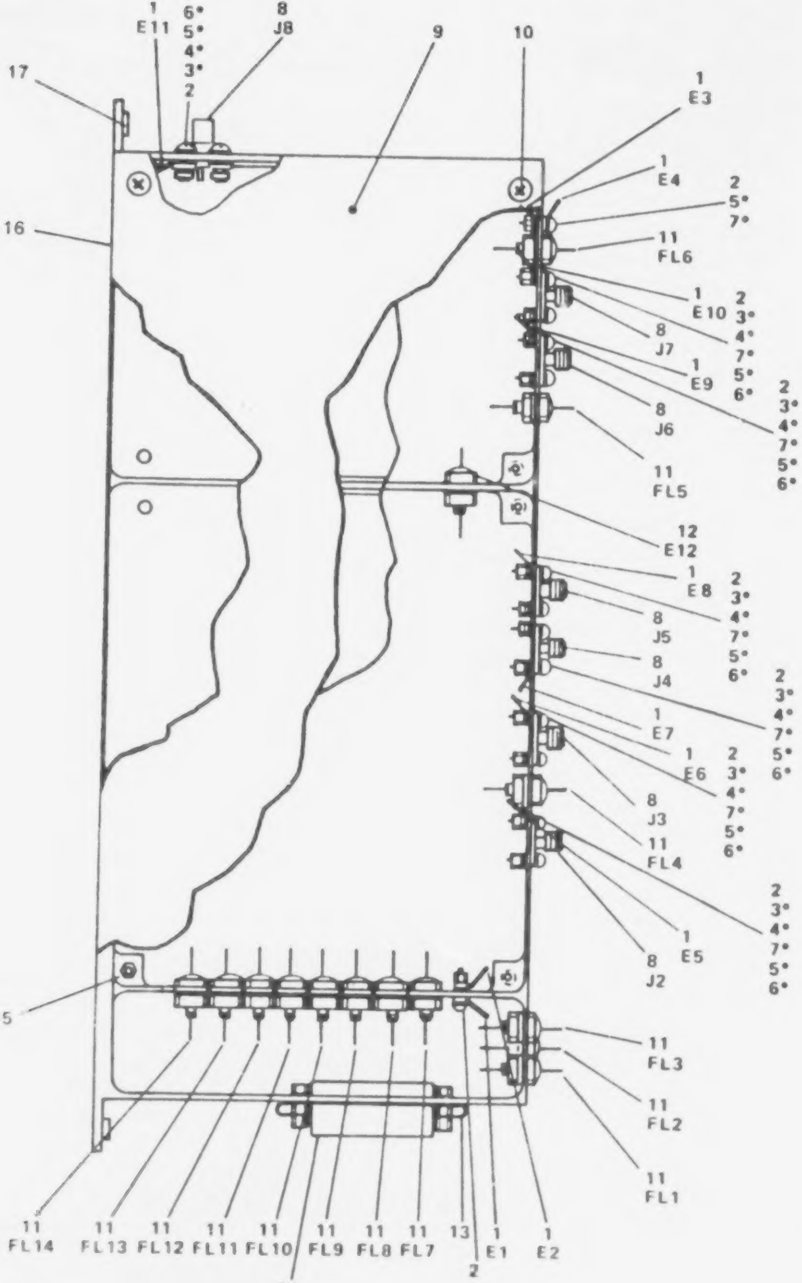

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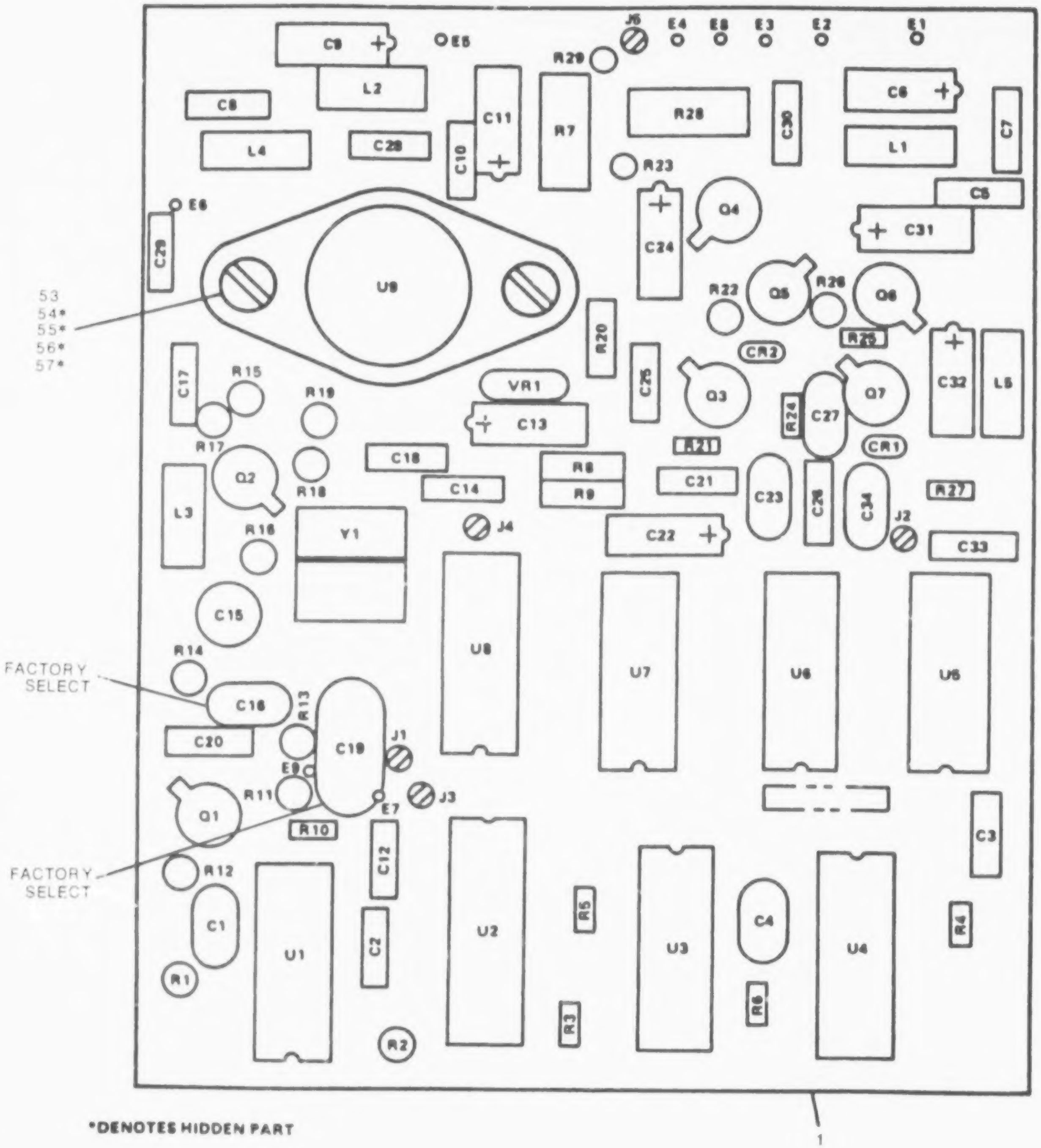
Figure C-48. Frequency Discriminator Electronic Components Assembly (A14)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - FREQUENCY DISCRIMINATOR ELECTRONIC COMPONENTS ASSY (A14) 10-123545-1		
C-48		PADDD	5865-01-248-7552	10-123544-2	28815	FREQUENCY DISC CIRCUIT CARD ASSY (SEE FIG C-49)	EA	1
C-48		PADDD	5865-01-248-7551	10-124204-1	28815	LOOP AMPLIFIER CIRCUIT CARD ASSY (SEE FIG C-50)	EA	1
C-48	1	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL,LUG	EA	11
C-48	2	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	28
C-48	3	XDDZZ	5305-00-054-5637	MS51957-3	96906	SCREW	EA	2
C-48	4	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	51
C-48	5	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	30
C-48	6	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	20
C-48	7	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	30
C-48	8	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	7
C-48	9	XDDZZ		1951-1-3022-1	15942	COVER,ACCESS	EA	2
C-48	10	XDDZZ	5305-00-210-5162	NAS1189E04P4L	80205	SCREW	EA	16
C-48	11	PADZZ	5915-01-048-8126	51-712-003	33095	FILTER,RFI	EA	14
C-48	12	XDDZZ		2643-2	71279	TERM,FEED-THRU	EA	1
C-48	13	XDDZZ	5935-00-925-1147	DA51220-1	71468	RETAINER,LOCK	EA	1
C-48	14	PADZZ	5935-00-490-3743	M24308/4-2	81349	CONNECTOR	EA	1
C-48	15	XDDZZ	5307-00-411-4484	9723-SS-0440-7	06540	MECHANICAL EQUIP	EA	8
C-48	16	XDDZZ		1951-1-4202-1	15942	CHASSIS,ELEC EQUIP	EA	1
C-48	17	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2



*DENOTES HIDDEN PART

Figure C-49. Frequency Discriminator Circuit Card Assembly A14A1 (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	10	L5	9	U9	51						
CR2	10	Q1	1	VR1	11						
C1	19	Q2	3	Y1	43						
C2	17	Q3	3								
C3	17	Q4	5	*FACTORY SELECT							
C4	18	Q5	4								
C5	17	Q6	1								
C6	12	Q7	3								
C7	17	R1	31								
C8	17	R2	31								
C9	12	R3	31								
C10	17	R4	31								
C11	13	R5	31								
C12	17	R6	35								
C13	14	R7	41								
C14	17	R8	38								
C15	22	R9	39								
*C16		R10	25								
C17	16	R11	30								
C18	17	R12	33								
*C19		R13	26								
C20	16	R14	24								
C21	17	R15	34								
C22	13	R16	36								
C23	20	R17	28								
C24	14	R18	31								
C25	17	R19	27								
C26	17	R20	29								
C27	21	R21	31								
C28	23	R22	32								
C29	15	R23	40								
C30	17	R24	31								
C31	14	R25	37								
C32	14	R26	37								
C33	17	R27	37								
C34	19	R28	42								
J1	52	R29	31								
J2	52	U1	44								
J3	52	U2	45								
J4	52	U3	46								
J5	52	U4	48								
L1	7	U5	47								
L2	7	U6	49								
L3	6	U7	48								
L4	8	U8	50								

Figure C-49. Frequency Discriminator Circuit Card Assembly A14A1 (Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - FREQUENCY DISCRIMINATOR CIRCUIT CARD ASSEMBLY (A14A1) 10-123544-2		
C-49	1	XA		12-123543-1	28815	PRINTED WIRING BOARD	EA	1
C-49	2	PADZZ	5961-00-420-3668	JANTX2N2369A	81349	TRANSISTOR	EA	1
C-49	3	PADZZ	5961-00-438-0598	JANTX2N3251A	81349	TRANSISTOR	EA	2
C-49	4	PADZZ	5961-00-421-3040	JANTX2N4856	81349	TRANSISTOR	EA	3
C-49	5	PADZZ	5961-01-082-5562	17-123787-7	28815	TRANSISTOR	EA	1
C-49	6	PADZZ	5950-01-066-7514	M39010/02-A2R2KP	81349	COIL	EA	1
C-49	7	PADZZ	5950-01-064-6335	M39010/02-A1R0KP	81349	COIL	EA	1
C-49	8	PADZZ	5950-01-064-9306	M39010/03-A563KP	81349	COIL	EA	2
C-49	9	PADZZ	5950-01-065-9744	M39010/03-A102KP	81349	COIL	EA	1
C-49	10	PADZZ	5961-00-494-4915	JANTX1N4148	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-49	11	PADZZ	5961-01-009-2234	JANTX1N4104	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-49	12	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-49	13	PADZZ	5910-00-007-2002	M39003/01-2523	81349	CAPACITOR	EA	2
C-49	14	PADZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	4
C-49	15	PADZZ	5910-00-113-5494	M39014/02-1260	81349	CAPACITOR	EA	1
C-49	16	PADZZ	5910-00-115-8456	M39014/02-1258	81349	CAPACITOR	EA	2
C-49	17	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	14
C-49	18	PADZZ	5910-01-060-9518	CMR03E390J0YP	81349	CAPACITOR	EA	1
C-49	19	PADZZ	5910-01-090-1530	CMR03E820J0YP	81349	CAPACITOR	EA	2
C-49	20	PADZZ	5910-01-087-6360	CMR03F101J0YP	81349	CAPACITOR	EA	1
C-49	21	PADZZ	5910-01-089-8735	CMR03F121J0YP	81349	CAPACITOR	EA	1
C-49	22	PADZZ	5910-00-170-9557	8052	91293	CAPACITOR	EA	1
C-49	23	PADZZ	5910-00-101-2382	M39014/02-1250	81349	CAPACITOR	EA	1
C-49	24	PADZZ	5905-00-568-7510	RCR05G472JP	81349	RESISTOR	EA	1
C-49	25	PADZZ	5905-00-093-5437	RCR05G220JP	81349	RESISTOR	EA	1
C-49	26	PADZZ	5905-00-028-9448	RCR05G330JP	81349	RESISTOR	EA	1
C-49	27	PADZZ	5905-00-028-9379	RCR05G100JP	81349	RESISTOR	EA	1
C-49	28	PADZZ	5905-00-028-9522	RCR05G470JP	81349	RESISTOR	EA	1
C-49	29	PADZZ	5905-00-141-1888	RCR07G201JP	81349	RESISTOR	EA	1
C-49	30	PADZZ	5905-00-125-0704	RCR05G331JP	81349	RESISTOR	EA	1
C-49	31	PADZZ	5905-00-568-7228	RCR05G102JP	81349	RESISTOR	EA	9
C-49	32	PADZZ	5905-00-568-7504	RCR05G302JP	81349	RESISTOR	EA	1
C-49	33	PADZZ	5905-00-568-7503	RCR05G272JP	81349	RESISTOR	EA	1
C-49	34	PADZZ	5905-00-568-7508	RCR05G332JP	81349	RESISTOR	EA	1
C-49	35	PADZZ	5905-00-568-7512	RCR05G512JP	81349	RESISTOR	EA	1
C-49	36	PADZZ	5905-00-568-7684	RCR05G682JP	81349	RESISTOR	EA	1
C-49	37	PADZZ	5905-00-568-7712	RCR05G103JP	81349	RESISTOR	EA	3

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-49	38	PADZZ	5905-00-461-2214	RNR55C3011FP	81349	RESISTOR	EA	1
C-49	39	PADZZ	5905-00-444-0291	RNR55C6811FP	81349	RESISTOR	EA	1
C-49	40	PADZZ	5905-00-568-7234	RCR05G182JP	81349	RESISTOR	EA	1
C-49	41	PADZZ	5905-00-228-6096	RCR32G560JP	81349	RESISTOR	EA	1
C-49	42	PADZZ	5905-00-114-5361	RCR20G121JP	81349	RESISTOR	EA	1
C-49	43	PADZZ		CR60AU16000KHZ	81349	CRYSTAL UNIT,QUARTZ	EA	1
C-49	44	PADZZ	5962-00-369-7706	M38510/01201BCB	81349	MICROCIRCUIT	EA	1
C-49	45	PADZZ	5962-00-369-7730	M38510/00204BEB	81349	MICROCIRCUIT	EA	1
C-49	46	PADZZ	5962-01-005-5529	M38510/01202BCB	81349	MICROCIRCUIT	EA	1
C-49	47	PADZZ	5962-00-436-0889	M38510/00201BCB	81349	MICROCIRCUIT	EA	1
C-49	48	PADZZ	5962-01-070-8432	M38510-31502BCX	81349	MICROCIRCUIT	EA	2
C-49	49	PADZZ	5962-00-349-2715	M38510/00102BCB	81349	MICROCIRCUIT	EA	1
C-49	50	PADZZ	5962-00-318-2223	M38510/00104BCB	81349	MICROCIRCUIT	EA	1
C-49	51	PADZZ		1569/BZXJC	04713	MICROCIRCUIT,LINEAR	EA	1
C-49	52	PADZZ	5935-01-081-4711	450-3755-01-03	04713	JACK,TIP	EA	5
C-49	53	XDDZZ	5975-00-441-1610	2829-75-3	98159	TIE,CABLE	EA	1
C-49	54	XDDZZ	5305-00-054-5648	MS51957-14	96906	SCREW	EA	2
C-49	55	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	4
C-49	56	XDDZZ	5310-00-933-8118	MS35338-135	96906	WASHER	EA	2
C-49	57	XDDZZ	5310-00-208-3786	NAS671C4	80205	NUT	EA	2

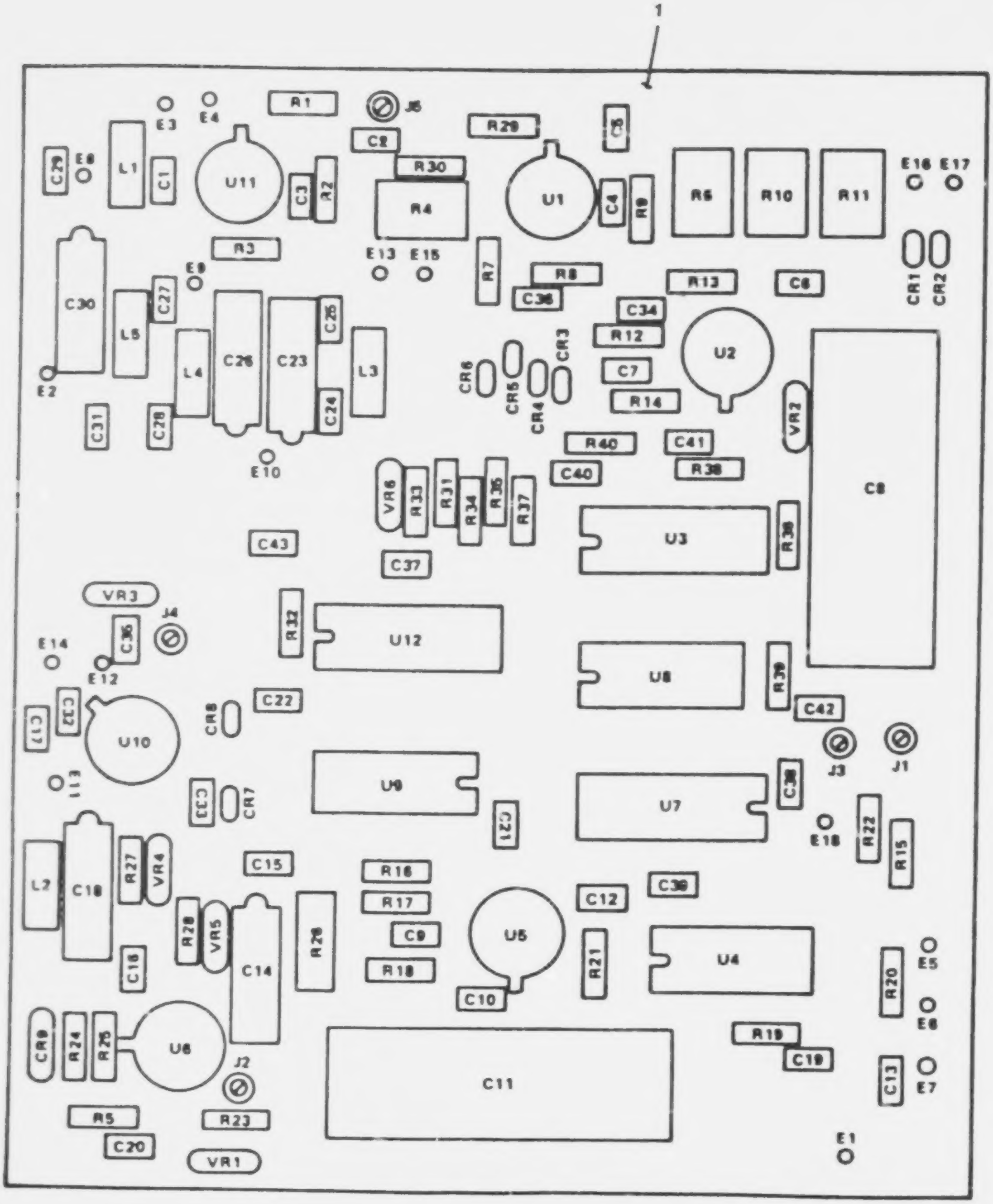


Figure C-50. Loop Amplifier Circuit Card Assembly (A14A2) (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	13	C37	18	R29	27						
CR2	13	C38	18	R30	28						
CR3	13	C39	18	R31	32						
CR4	13	C40	18	R32	32						
CR5	13	C41	18	R33	42						
CR6	13	C42	18	R34	37						
CR7	13	C43	18	R35	43						
CR8	13	J1	2	R36	43						
CR9	13	J2	2	R37	41						
C1	19	J3	2	R38	34						
C2	18	J4	2	R39	32						
C3	18	J5	2	R40	32						
C4	18	L1	10	U1	3						
C5	18	L2	11	U2	3						
C6	18	L3	12	U3	4						
C7	18	L4	12	U4	5						
C8	26	L5	12	U5	6						
C9	18	R1	50	U6	6						
C10	18	R2	32	U7	7						
C11	26	R3	32	U8	8						
C12	18	R4	31	U9	8						
C13	18	R5	35	U10	9						
C14	25	R6	31	U11	6						
C15	18	R7	29	U12	4						
C16	18	R8	32	VR1	14						
C17	18	R9	32	VR2	15						
C18	23	R10	31	VR3	14						
C19	20	R11	31	VR4	16						
C20	22	R12	30	VR5	17						
C21	18	R13	32	VR6	15						
C22	18	R14	32								
C23	23	R15	44								
C24	18	R16	45								
C25	18	R17	32								
C26	23	R18	32								
C27	18	R19	46								
C28	18	R20	32								
C29	18	R21	32								
C30	24	R22	36								
C31	18	R23	39								
C32	18	R24	38								
C33	18	R25	47								
C34	18	R26	48								
C35	21	R27	36								
C36	18	R28	33								

Figure C-50. Loop Amplifier Circuit Card Assembly (A14A2)
(Sheet 2 of 2)

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(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - LOOP AMPLIFIER CIRCUIT CARD ASSEMBLY (A14A2) 10-124204-1		
C-50	1	XA		12-124203-1	28815	PRINTED WIRING BOARD	EA	1
C-50	2	XDOZZ	5935-01-081-4711	450-3755-01-03	71279	JACK,TIP	EA	5
C-50	3	PADZZ	5962-01-263-2878	LM107H/883C	18324	MICROCIRCUIT,LINEAR	EA	2
C-50	4	PADZZ	5962-01-027-8600	AH0015D/883B	27014	MICROCIRCUIT,DIGITAL	EA	2
C-50	5	PADZZ	5962-01-008-8781	AH0014D/883B	27014	MICROCIRCUIT,DIGITAL	EA	1
C-50	6	PADZZ	5962-00-599-5695	M38510/10101BGB	81349	MICROCIRCUIT	EA	3
C-50	7	PADZZ	5962-00-302-3963	M38510/30703BEX	01295	MICROCIRCUIT,DIGITAL	EA	1
C-50	8	PADZZ	5962-00-390-7958	M38510/02004BCB	81349	MICROCIRCUIT	EA	2
C-50	9	PADZZ	5962-01-107-6925	LH002H/883B	27014	MICROCIRCUIT,LINEAR	EA	1
C-50	10	PADZZ	5950-01-066-0921	M39010/03-A104KR	81349	COIL	EA	1
C-50	11	PADZZ		M39010/03-A103KR	81349	COIL	EA	1
C-50	12	PADZZ	5950-01-064-6335	M39010/02A1R0KP	81349	COIL	EA	3
C-50	13	PADZZ	5961-00-494-4915	JANTX 1N4148	81349	SEMICONDUCTOR DEVICE,DIODE	EA	9
C-50	14	PADZZ	5961-00-450-8526	JANTX 1N748A	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-50	15	PADZZ	5961-01-009-2234	JANTX 1N4104	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-50	16	PADZZ	5961-00-105-5736	JANTX 1N759A	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-50	17	PADZZ	5961-00-938-4978	JANTX 1N965B	81349	SEMICONDUCTOR DEVICE,DIODE	EA	1
C-50	18	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	3
C-50	19	PADZZ	5910-00-114-0803	M39014/02-1261	81349	CAPACITOR	EA	1
C-50	20	PADZZ	5910-00-098-9242	M39014/01-1486	81349	CAPACITOR	EA	1
C-50	21	PADZZ		RPE110X7R681K100V	18796	CAPACITOR	EA	1
C-50	22	PADZZ	5910-01-010-6473	M39014/01-1495	81349	CAPACITOR	EA	1
C-50	23	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	3
C-50	24	PADZZ	5910-00-996-0667	M39003/01-2511	81349	CAPACITOR	EA	1
C-50	25	PADZZ	5910-00-192-7180	M39003/01-2499	81349	CAPACITOR	EA	1
C-50	26	PADZZ		M83421/01-1316P	81349	CAPACITOR	EA	2
C-50				21-126387-1 (selected at test from the following:)	28815	KIT,SPARE PARTS,R29	EA	1
C-50	27	PADZZ	5905-00-463-8149	RNR55C1000FP	81349	RESISTOR	EA	1
C-50	27	PADZZ	5905-00-445-1563	RNR55C2000FP	81349	RESISTOR	EA	1
C-50	27	PADZZ	5905-00-432-9308	RNR55C3010FP	81349	RESISTOR	EA	1
C-50	27	PADZZ	5905-00-784-3209	RNR55C4020FP	81349	RESISTOR	EA	1
C-50	27	PADZZ	5905-00-419-3895	RNR55C4990FP	81349	RESISTOR	EA	1
C-50		XC		21-126388-1 (selected at test from the following:)	28815	KIT,SPARE PARTS,R30	EA	1
C-50	28	PADZZ	5905-00-284-5015	RNR55C8062FP	81349	RESISTOR	EA	1
C-50	28	PADZZ	5905-00-264-4066	RNR55C1103FP	81349	RESISTOR	EA	1

(1) ILLUSTRATION FIG NO	ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
C-50	28	PADZZ	5905-00-489-0637	RNR55C1503FP	81349	RESISTOR	EA	1
C-50	28	PADZZ		RNR55C3013FP	81349	RESISTOR	EA	1
C-50	28	PADZZ	5905-01-193-1885	RNR55C2263FP	81349	RESISTOR	EA	1
C-50	29	PADZZ	5905-00-461-8992	RNR55C3161FP	81349	RESISTOR	EA	1
C-50	30	PADZZ	5905-00-008-6822	RNR55C6651FP	81349	RESISTOR	EA	1
C-50	31	PADZZ	5905-01-080-6278	RBR56L63400FP	81349	RESISTOR	EA	4
C-50	32	PADZZ	5905-00-141-1183	RCR07G101JP	81349	RESISTOR	EA	14
C-50	33	PADZZ	5905-00-141-1888	RCR07G201JP	81349	RESISTOR	EA	1
C-50	34	PADZZ	5905-00-141-1897	RCR07G271JP	81349	RESISTOR	EA	1
C-50	35	PADZZ	5905-00-116-2394	RCR07G511JP	81349	RESISTOR	EA	1
C-50	36	PADZZ	5905-00-110-7620	RCR07G102JP	81349	RESISTOR	EA	2
C-50	37	PADZZ	5905-00-104-8362	RCR07G132JP	81349	RESISTOR	EA	1
C-50	38	PADZZ	5905-00-106-1356	RCR07G152JP	81349	RESISTOR	EA	1
C-50	39	PADZZ	5905-00-997-2192	RCR07G202JP	81349	RESISTOR	EA	1
C-50	40	PADZZ	5905-00-136-8406	RCR07G242JP	81349	RESISTOR	EA	1
C-50	41	PADZZ	5905-00-932-5095	RCR07G332JP	81349	RESISTOR	EA	1
C-50	42	PADZZ	5905-00-110-7622	RCR07G682JP	81349	RESISTOR	EA	1
C-50	43	PADZZ	5905-00-141-1132	RCR07G752JP	81349	RESISTOR	EA	2
C-50	44	PADZZ	5905-00-106-3666	RCR07G103JP	81349	RESISTOR	EA	1
C-50	45	PADZZ	5905-00-106-9356	RCR07G203JP	81349	RESISTOR	EA	1
C-50	46	PADZZ	5905-00-119-3504	RCR07G273JP	81349	RESISTOR	EA	1
C-50	47	PADZZ	5905-00-122-0004	RCR07G433JP	81349	RESISTOR	EA	1
C-50	48	PADZZ	5905-00-105-7768	RCR07G561JP	81349	RESISTOR	EA	1

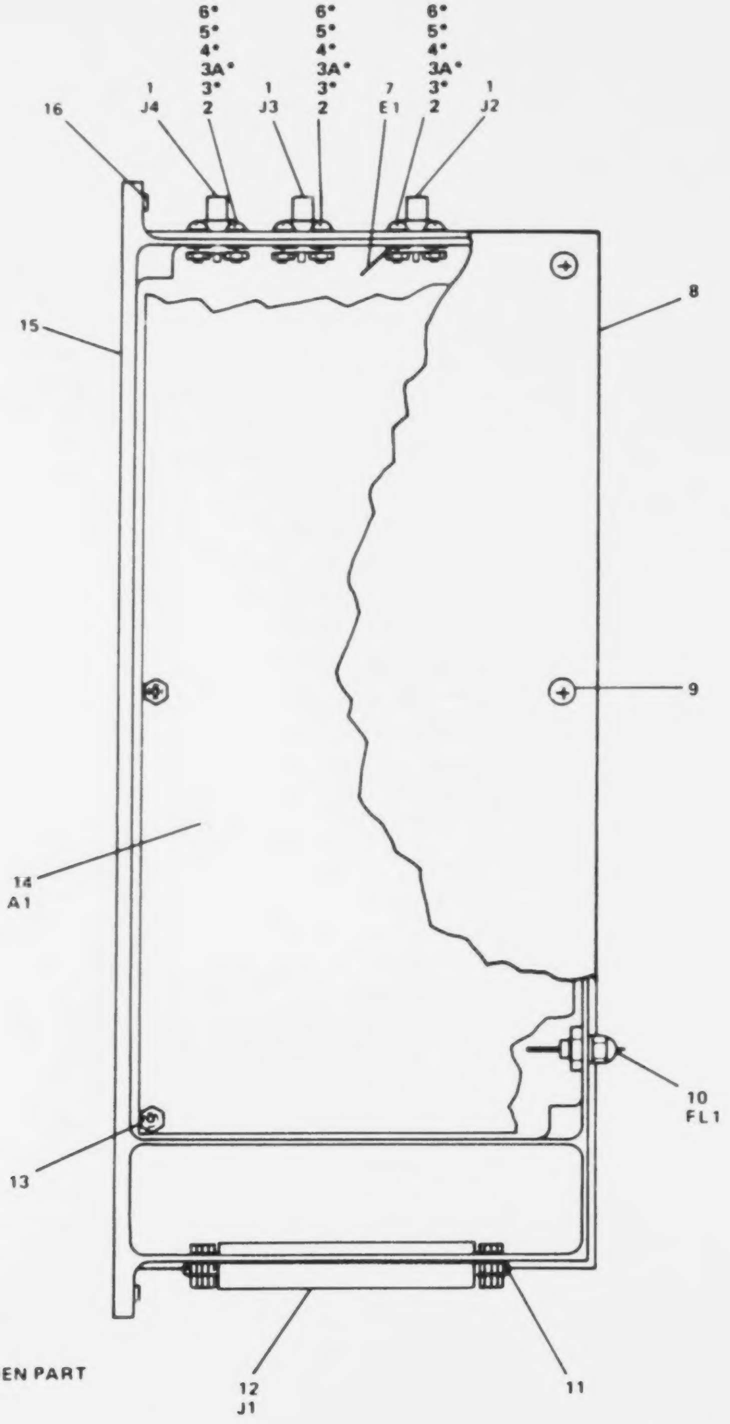

Figure C-51. Receiver Sweep Electronic Components Assembly (A15)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - RECEIVER SWEEP ELECTRONIC COMPONENTS ASSY (A15) 10-123555-1		
C-51	1	XDDZZ		1951-1-3021-1	15942	COVER, ACCESS	EA	2
C-51	2	PADDD	5865-01-248-7491	5048944-1	57958	CIRCUIT CARD ASSY, RCVR SWEEP (SEE FIG C-52)	EA	1
C-51	3	XDDZZ	5935-00-995-1647	DC51222-1	71468	RETAINER, SLIDING	EA	1
C-51	4	PADZZ	5915-01-034-2934	1270-066	72982	FILTER, RFI	EA	1
C-51	5	PADZZ	5935-00-262-6083	M39012/60-3001	81349	CONNECTOR	EA	3
C-51	6	PADZZ	5935-00-410-9252	M24308/4-4	81349	CONNECTOR	EA	1
C-51	7	XDDZZ		1951-1-4192-1	15942	CHASSIS, ELEC, EQUIP	EA	1
C-51	8	XDDZZ	5307-00-411-4484	9723-SS-0440-7	06540	POST, ELEC-MECH EQUIP	EA	6
C-51	9	XDDZZ	5940-00-259-9057	T251	92219	TERMINAL, LUG	EA	1
C-51	10	XDDZZ	5305-00-763-6009	MS24693-C1	96906	SCREW	EA	12
C-51	11	XDDZZ	5305-00-054-5638	MS51957-4	96906	SCREW	EA	12
C-51	12	XDDZZ	5310-00-043-4708	NAS620C2	80205	WASHER	EA	23
C-51	13	XDDZZ	5310-00-543-4652	MS35333-69	96906	WASHER	EA	3
C-51	14	XDDZZ	5310-00-928-2690	MS35338-134	96906	WASHER	EA	11
C-51	15	XDDZZ	5310-00-812-4294	NAS671C2	80205	NUT	EA	12
C-51	16	XDDZZ	5310-00-057-0573	NAS620C4	80205	WASHER	EA	2

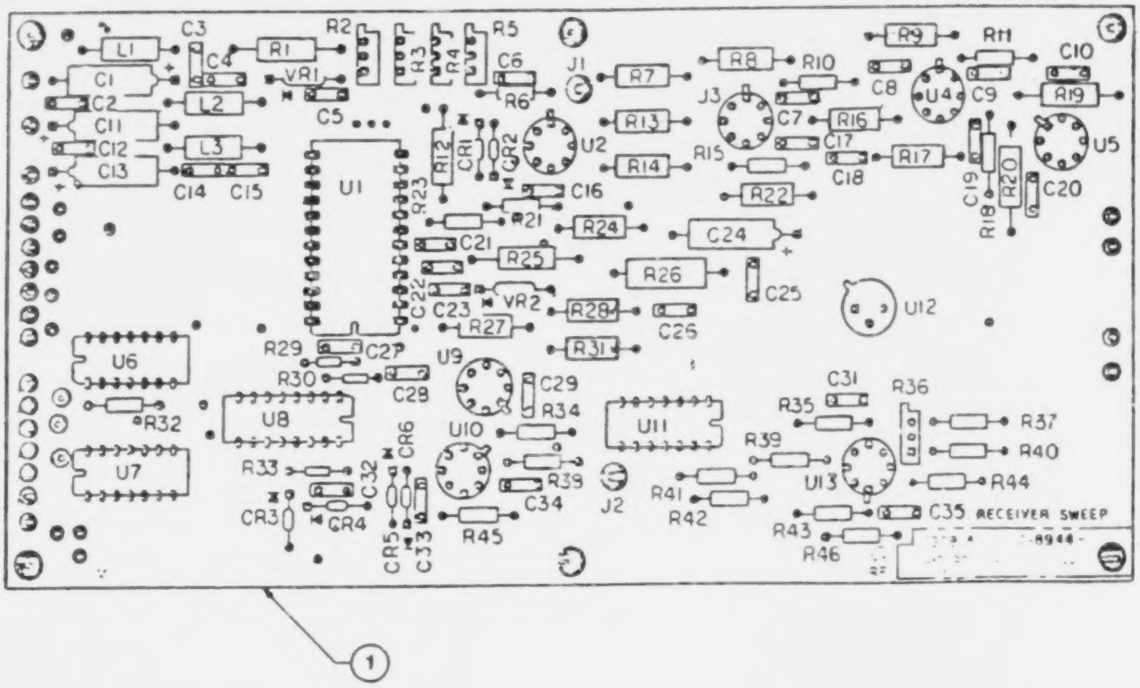

Figure C-52. Receiver Sweep Circuit Card Assembly (A15A1) (Sheet 1 of 2)

LEGEND

REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO	REF DES	ITEM NO
CR1	8	L3	7	R44	21						
CR2	8	R1	34	R45	20						
CR3	8	R2	38	R46	22						
CR4	8	R3	35	U1	16						
CR5	8	R4	36	U2	15						
CR6	8	R5	37	U3	15						
C1	4	R6	20	U4	15						
C2	6	R7	29	U5	13						
C3	6	R8	29	U6	10						
C4	6	R9	29	U7	10						
C5	6	R10	20	U8	11						
C6	6	R11	20	U9	15						
C7	6	R12	30	U10	15						
C8	5	R13	33	U11	12						
C9	6	R14	28	U12	17						
C10	6	R15	20	U13	14						
C11	4	R16	30	VR1	9						
C12	6	R17	29	VR2	9						
C13	3	R18	20								
C14	6	R19	23								
C15	6	R20	23								
C16	6	R21	20								
C17	6	R22	30								
C18	6	R23	19								
C19	6	R24	31								
C20	6	R25	33								
C21	6	R26	33								
C22	6	R27	32								
C23	6	R28	26								
C24	3	R29	18								
C25	6	R30	18								
C26	6	R31	27								
C27	6	R32	21								
C28	6	R33	18								
C29	6	R34	20								
C31	6	R35	20								
C32	6	R36	37								
C33	6	R37	24								
C34	6	R38	20								
C35	6	R39	21								
J1	2	R40	25								
J2	2	R41	21								
L1	7	R42	21								
L2	7	R43	20								

Figure C-52. Receiver Sweep Circuit Card Assembly (A15A1)
(Sheet 2 of 2)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - RECEIVER SWEEP CIRCUIT CARD ASSEMBLY (A15A1) 5048946-1		
C-52	1	XA		5048946-1	57958	PRINTED WIRING BOARD	EA	1
C-52	2	XDDZZ	5935-01-081-4711	450-3755-01-03-0	71279	JACK,CONNECTOR	EA	2
C-52	3	PADZZ	5910-00-072-7647	M39003/01-2526	81349	CAPACITOR	EA	2
C-52	4	PADZZ	5910-00-996-2259	M39003/01-2608	81349	CAPACITOR	EA	2
C-52	5	PADZZ	5910-00-143-0501	M39014/02-1252	81349	CAPACITOR	EA	1
C-52	6	PADZZ	5910-00-113-5499	M39014/02-1270	81349	CAPACITOR	EA	29
C-52	7	PADZZ	5950-01-064-6335	M39010/2-A1R0KP	81349	COIL	EA	3
C-52	8	PADZZ	5961-00-494-4915	JANTX 1N4148	81349	SEMICONDUCTOR DEVICE,DIODE	EA	6
C-52	9	PADZZ	5961-00-133-2982	JANTX 1N829	81349	SEMICONDUCTOR DEVICE,DIODE	EA	2
C-52	10	PADZZ	5962-00-390-7970	M38510/02005BCB	81349	MICROCIRCUIT	EA	2
C-52	11	PADZZ		DAC100BCQ7	06665	CONVERTER,DIGITAL/ ANALOG	EA	1
C-52	12	PADZZ	5962-01-008-8781	AH0014D/883B	27014	MICROCIRCUIT,LINEAR	EA	1
C-52	13	PADZZ	5962-01-107-6925	LH0002H/883B	27014	MICROCIRCUIT,LINEAR	EA	1
C-52	14	PADZZ	5962-00-131-9460	LM111H/883B	27014	MICROCIRCUIT,LINEAR	EA	1
C-52	15	PADZZ		LH107H/883B	34335	MICROCIRCUIT,LINEAR	EA	5
C-52	16	PADZZ	5962-01-086-1999	AD562SD BIN/883B	24355	CONVERTER,DIGITAL/ ANALOG	EA	1
C-52	17	PADZZ	5962-01-101-4023	LH0070-1H/883B	27014	MICROCIRCUIT,LINEAR	EA	1
C-52	18	PADZZ	5905-00-028-9379	RCR05G100JP	81349	RESISTOR	EA	3
C-52	19	PADZZ	5905-00-141-1855	RCR07G100JP	81349	RESISTOR	EA	1
C-52	20	PADZZ	5905-00-141-1183	RCR07G101JP	81349	RESISTOR	EA	11
C-52	21	PADZZ	5905-00-114-0711	RCR07G472JP	81349	RESISTOR	EA	5
C 52	22	PADZZ	5905-00-596-0763	RCR07G105JP	81349	RESISTOR	EA	1
C-52	23	PADZZ	5905-00-106-9344	RCR20G101JP	81349	RESISTOR	EA	2
C-52	24	PADZZ	5905-00-760-0519	RNR55C1502FP	81349	RESISTOR	EA	1
C-52	25	PADZZ	5905-01-025-0692	RNR55C8451FP	81349	RESISTOR	EA	1
C-52	26	PADZZ	5905-00-439-0428	RBR56L25500FP	81349	RESISTOR	EA	1
C-52	27	PADZZ	5905-01-080-6278	RBR56L63400FP	81349	RESISTOR	EA	1
C-52	28	PADZZ	5905-00-478-4224	RBR56L12101FP	81349	RESISTOR	EA	1
C-52	29	PADZZ		RBR56L26701FP	81349	RESISTOR	EA	4
C-52	30	PADZZ	5905-00-243-3129	RBR56L71501FP	81349	RESISTOR	EA	3
C-52	31	PADZZ	5905-00-145-3657	RBR56L150R0FP	81349	RESISTOR	EA	1
C-52	32	PADZZ	5905-00-763-9182	RBR56L22600FP	81349	RESISTOR	EA	1
C-52	33	PADZZ		TYPE7009-ER267K0	01606	RESISTOR	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-52	34	PADZZ	5905-00-478-7365	RBR55L10000FP	01606	RESISTOR	EA	3
C-52	35	PADZZ	5905-01-070-3508	M39015/3-007XP	01606	RESISTOR	EA	1
C-52	36	PADZZ	5905-00-497-0865	M39015/3-005XP	01606	RESISTOR	EA	1
C-52	37	PADZZ	5905-01-077-9821	M39015/3-010XP	01606	RESISTOR	EA	2
C-52	38	PADZZ	5905-00-497-0866	M39015/3-006XP	01606	RESISTOR	EA	1

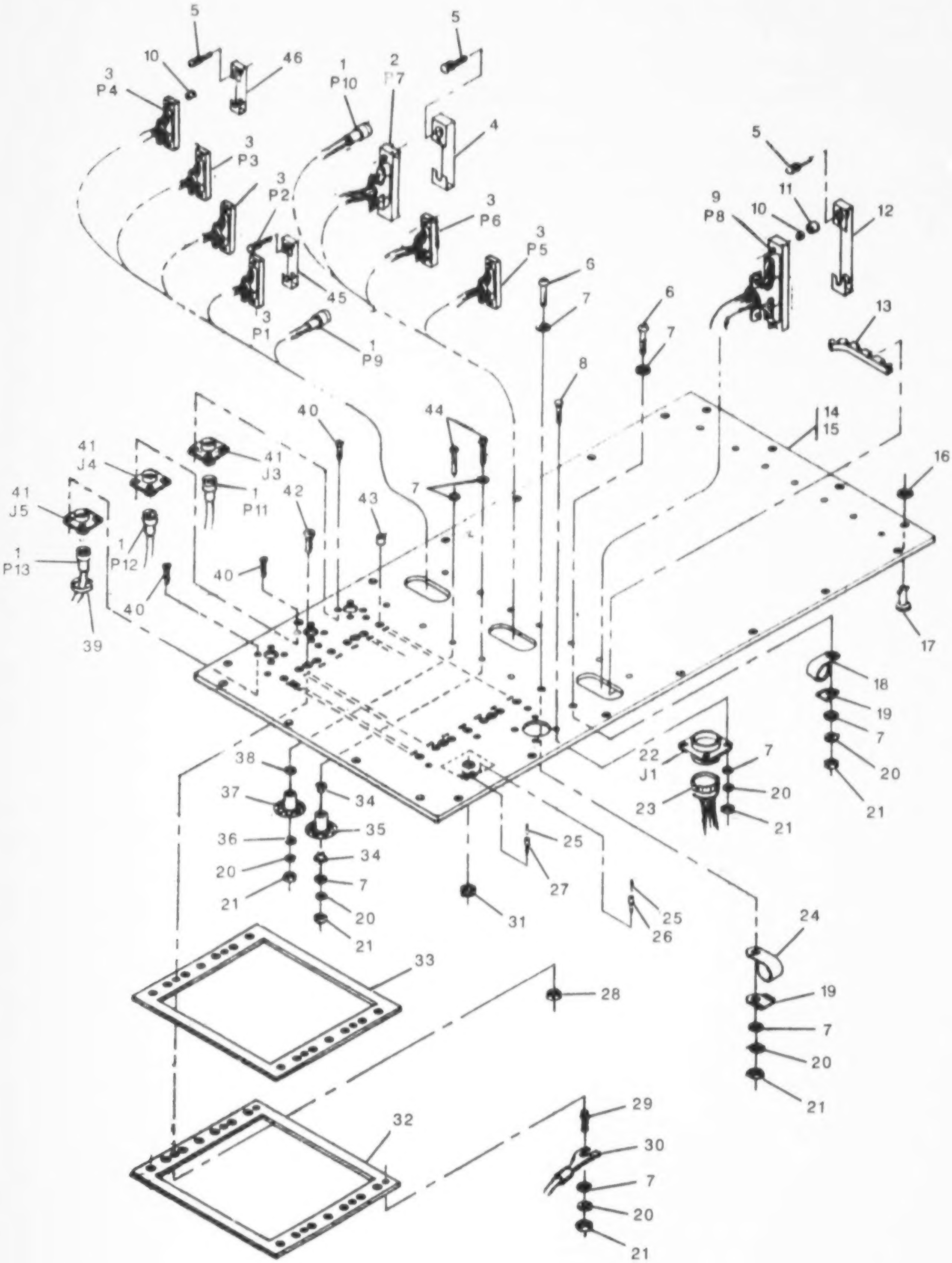

Figure C-53. Connector Plate Assembly (A16)

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP - CONNECTOR PLATE ASSY (A16) 1951-1-4190-1		
C-53	1	PADZZ	5935-01-081-9988	2007-5061-02	26805	CONNECTOR	EA	5
C-53	2	PADZZ	5935-00-490-5220	M24308/2-2	81349	CONNECTOR	EA	1
C-53	3	PADZZ	5935-00-490-5219	M24308/2-1	81349	CONNECTOR	EA	6
C-53	4	PADZZ	5935-00-683-5095	DA20961	71468	ADAPTER,ELEC	EA	1
C-53	5	XDDZZ	5935-00-570-6119	D53018	71468	POST,MTG	EA	8
C-53	6	XDDZZ	5305-00-054-5649	MS51957-15	96906	SCREW	EA	2
C-53	7	XDDZZ	5310-00-595-6211	MS15795-803	96906	WASHER	EA	19
C-53	8	XDDZZ	5305-00-225-6400	MS24693-C3	96906	SCREW	EA	4
C-53	9	PADZZ	5935-00-490-5220	M24308/2-4	81349	CONNECTOR	EA	1
C-53	10	PADZZ	5365-00-828-8526	MS3420-6A	96906	BUSHING,CABLE,ADAPTER	EA	8
C-53	11	PADZZ	5365-00-598-5394	MS3420-8A	96906	BUSHING,CABLE,ADAPTER	EA	1
C-53	12	PADZZ	5935-00-716-6578	DC20963	71468	ADAPTER,ELEC	EA	1
C-53	13	XDDZZ		MS21266N	96906	GROMMET,PLASTIC		AR
C-53	14	XA		1951-1-5014-501	15942	PLATE,MTG	EA	1
C-53	15	XDDDD		1951-1-5014-1	15942	PLATE,MTG CONNECTOR	EA	1
C-53	16	XDDZZ	5310-00-849-1984	5S3-2	71286	WASHER,SPLIT	EA	22
C-53	17	XDDZZ	5325-00-831-3400	5S5-13	71286	STUD,TURNLOCK FASTENER	EA	22
C-53	18	XDDZZ	5340-01-076-1773	CLN-5/6	51705	CLAMP,CABLE	EA	1
C-53	19	XDDZZ	5310-00-619-5280	D-140	95987	WASHER,SADDLE	EA	2
C-53	20	XDDZZ	5310-00-933-8118	MS35338-135	96906	WASHER	EA	1
C-53	21	XDDZZ	5310-00-208-3786	NAS671C4	80205	NUT	EA	13
C-53	22	PADZZ	5935-01-082-4457	MS27508E14F18P	96906	CONNECTOR	EA	1
C-53	23					NOT USED		
C-53	24	XDDZZ	5340-01-074-4183	CLN-3/8	51705	CLAMP,CABLE	EA	1
C-53	25	PADZZ	5999-01-051-3735	010-8509-502	31413	CONTACT,ELEC	EA	764
C-53	26	XDDZZ	5970-01-129-7630	302-0002-002	31413	INSULATOR,BUSHING	EA	728
C-53	27	XDDZZ	5999-01-049-8327	516-0014-505	15942	BUSHING,GND	EA	36
C-53	28	XDDZZ	5310-00-218-2181	MS51858-3	96906	NUT	EA	4
C-53	29	XDDZZ	5307-00-475-1172	FHS-440-6	46384	STUD,CLINCH	EA	2
C-53	30	XDDZZ	5940-00-815-5511	YAE18Z2	09922	TERMINAL,LUG	EA	2
C-53	31	XDDZZ	5310-01-039-7460	516-0027-000	31413	NUT,SLF-LKG,RD	EA	1
C-53	32	XA		1951-1-5014-502	15942	PLATE,SPACER	EA	1
C-53	33	XA		1951-1-5014-503	15942	PLATE,SPACER	EA	1
C-53	34	XDDZZ	5365-01-076-5502	3054	91833	BUSHING,SHLDR	EA	8
C-53	35	XDDZZ	5940-00-839-0828	SE26XF01	81349	TERMINAL,STUD	EA	4
C-53	36	XDDZZ	5310-00-782-1349	MS15795-804	96906	WASHER	EA	1
C-53	37	XDDZZ	5940-00-918-8068	SE26XF02	81349	TERMINAL,STUD	EA	1
C-53	38	XDDZZ	5310-00-058-3599	MS35335-57	96906	WASHER	EA	13

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	DESCRIPTION USABLE ON CODE	U/M	QTY INC IN UNIT
C-53	39	XDDZZ		MS3368-5-9E	96906	STRAP	EA	13
C-53	40	XDDZZ	5305-01-097-7681	A145B2308LL	70318	SCREW,SLF-LKG	EA	12
C-53	41	PADZZ		3180-2242-00	26805	ADAPTER,CONN,TNC	EA	3
C-53	42	XDDZZ	5305-00-582-6151	MS18212-30	96906	SCREW	EA	4
C-53	43	XDDZZ	5970-00-464-0465	516-0018-000	31413	POLARIZING KEY, ELEC CONN	EA	14
C-53	44	XDDZZ	5305-00-054-5652	MS51957-18	96906	SCREW	EA	5
C-53	45	PADZZ	5935-01-066-3331	1951-1-2368-1	15942	ADAPTER,ELEC CONN	EA	1
C-53	46	PADZZ	5935-00-781-1049	DE44994	71468	ADAPTER,ELEC	EA	5

Section III. SPECIAL TOOLS LIST

(Not Applicable)

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
	C-4	23		C-7	13
	C-4	24		C-7	14
	C-4	25		C-7	15
	C-4	26		C-7	16
	C-4	27		C-7	17
	C-4	28		C-7	18
	C-4	29		C-7	19
	C-5	1		C-7	20
	C-5	2		C-8	1
	C-5	3		C-8	2
	C-5	4		C-8	3
	C-5	5		C-8	4
	C-5	6		C-8	5
	C-5	7		C-8	6
	C-5	8		C-8	7
	C-5	9		C-8	8
	C-5	10		C-8	9
	C-5	11		C-8	10
	C-5	12		C-8	11
	C-6	1		C-8	12
	C-6	2		C-8	13
	C-6	3		C-8	14
	C-6	4		C-8	15
	C-6	5		C-8	16
	C-6	6		C-8	17
	C-6	7		C-8	18
	C-6	8		C-9	1
	C-6	9		C-9	2
	C-6	10		C-9	3
	C-6	11		C-9	4
	C-6	12		C-9	5
	C-6	13		C-9	6
	C-6	14		C-9	7
	C-6	15		C-9	8
	C-6	16		C-9	9
	C-6	17		C-9	10
	C-6	18		C-9	11
	C-7	1		C-9	12
	C-7	2		C-9	13
	C-7	3		C-9	14
	C-7	4		C-9	15
	C-7	5		C-9	16
	C-7	6		C-9	17
	C-7	7		C-9	18
	C-7	8		C-9	19
	C-7	9		C-9	20
	C-7	10		C-9	21
	C-7	11		C-9	22
	C-7	12		C-9	23

Section IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
	C-1	1
	C-1	7
	C-1	8
	C-1	11
	C-2	1A
	C-2	1B
	C-2	1C
	C-2	6
	C-2	7
	C-2	8
	C-2	11
	C-2	12
	C-2	18
	C-2	19
	C-2	21
	C-2	22
	C-2	25
	C-2	26
	C-2	30
	C-2	31
	C-2	32
	C-2	33
	C-2	34
	C-2	36
	C-2	37
	C-2	38
	C-2	40
	C-2	44
	C-2	47
	C-2	48
	C-2	50
	C-2	51
	C-2	52
	C-3	1
	C-3	2
	C-3	3
	C-3	4
	C-3	5
	C-3	6
	C-3	8
	C-3	10
	C-3	11
	C-4	2
	C-4	3
	C-4	4
	C-4	5
	C-4	6
	C-4	7
	C-4	8
	C-4	9
	C-4	13
	C-4	18
	C-4	21
	C-4	28
	C-4	29
	C-5	1
	C-5	2
	C-5	3
	C-5	8
	C-6	1
	C-6	8
	C-6	14
	C-6	15
	C-6	16
	C-7	1
	C-7	2
	C-7	10
	C-7	11
	C-7	19
	C-8	3
	C-8	4
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	C-8	6
	C-8	7
	C-8	8
	C-8	12
	C-8	16
	C-9	9
	C-9	12
	C-9	13
	C-9	14
	C-9	15
	C-9	16
	C-9	18
	C-9	19
	C-9	20
	C-9	22
	C-9	23
	C-9	24
	C-9	25
	C-9	26
	C-9	33
	C-10	0
	C-10	1
	C-10	2
	C-10	4

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
	C-10	6		C-17	38
	C-10	8		C-18	1
	C-10	11		C-18	2
	C-10	22		C-18	3
	C-10	27		C-18	18
	C-10	32		C-18	26
	C-10	34		C-18	34
	C-11	0		C-18	35
	C-11	1		C-18	38
	C-11	2		C-18	39
	C-11	8		C-19	1
	C-11	40		C-19	2
	C-12	1		C-19	3
	C-12	2		C-19	8
	C-12	5		C-19	42
	C-13	7		C-19	43
	C-13	8		C-19	43
	C-13	9		C-19	43
	C-13	13		C-19	44
	C-13	14		C-19	44
	C-13	15		C-19	45
	C-13	20		C-19	46
	C-13	21		C-20	2
	C-14	0		C-20	3
	C-14	1		C-20	6
	C-14	18		C-20	9
	C-14	21		C-20	15
	C-14	25		C-20	18
	C-14	28		C-20	20
	C-14	29		C-20	22
	C-15	2		C-20	23
	C-15	3		C-20	24
	C-15	4		C-20	26
	C-15	5		C-20	27
	C-15	6		C-21	1
	C-15	8		C-21	2
	C-15	12		C-21	5
	C-15	19		C-21	8
	C-15	20		C-21	13
	C-16	1		C-21	15
	C-16	2		C-21	19
	C-16	4		C-21	21
	C-16	5		C-21	28
	C-17	1		C-21	29
	C-17	2		C-21	30
	C-17	3		C-21	31
	C-17	18		C-21	32
	C-17	26		C-21	34
	C-17	34		C-21	41
	C-17	37		C-21	42

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
	C-21	43
	C-21	44
	C-21	45
	C-21	46
	C-21	54
	C-21	70
	C-21	71
	C-21	72
	C-21	75
	C-21	76
	C-21	79
	C-21	81
	C-21	82
	C-21	83
	C-21	86
	C-21	88
	C-22	1
	C-22	2
	C-22	4
	C-22	6
	C-22	7
	C-22	8
	C-22	9
	C-22	10
	C-22	24
	C-23	1
	C-23	7
	C-23	29
	C-24	1
	C-24	2
	C-24	F6
	C-24	7
	C-24	F8
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	C-24	9
	C-24	F9
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	C-24	10
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	C-24	11
	C-24	24
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	C-25	1
	C-25	5
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	C-26	3
	C-27	4
	C-28	4
	C-29	2
	C-29	3
	C-30	4
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	C-33	25
	C-33	41
	C-34	1
	C-34	2
	C-34	11
	C-34	17
	C-35	1
	C-35	F25
	C-35	40
	C-35	41
	C-35	44
	C-36	1
	C-36	5
	C-37	1
	C-37	17
	C-38	2
	C-38	7
	C-39	1
	C-39	9
	C-39	23
	C-39	F39
	C-39	40
	C-39	F50
	C-39	F51
	C-39	63
	C-39	70
	C-40	1
	C-40	5
	C-41	1
	C-41	13
	C-41	14
	C-41	15
	C-41	27
	C-41	31

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
	C-42	1		C-53	41
	C-42	2	5305-00-054-5638	C-22	18
	C-42	4	5305-00-054-5638	C-38	13
	C-43	1	5305-00-054-5638	C-40	10
	C-43	5	5305-00-054-5638	C-42	16
	C-43	9	5305-00-054-5638	C-44	11
	C-43	35	5305-00-054-5638	C-46	12
	C-44	1	5305-00-054-5638	C-48	2
	C-44	2	5305-00-054-5638	C-51	11
	C-44	17	5305-00-054-5644	C-21	85
	C-45	1	5305-00-054-5647	C-5	6
	C-45	6	5305-00-054-5647	C-6	11
	C-45	7	5305-00-054-5647	C-7	17
	C-45	8	5305-00-054-5647	C-8	11
	C-46	1	5305-00-054-5647	C-13	4
	C-46	2	5305-00-054-5647	C-8	1
	C-46	10	5305-00-054-5648	C-21	16
	C-47	1	5305-00-054-5648	C-49	54
	C-47	4	5305-00-054-5649	C-2	27
	C-47	6	5305-00-054-5649	C-15	21
	C-47	21	5305-00-054-5649	C-22	14
	C-47	22	5305-00-054-5649	C-53	6
	C-47	23	5305-00-054-5650	C-21	55
	C-47	25	5305-00-054-5651	C-4	19
	C-48	9	5305-00-054-5652	C-53	44
	C-48	12	5305-00-054-6650	C-13	1
	C-48	16	5305-00-054-6651	C-2	17
	C-49	1	5305-00-054-6651	C-4	15
	C-49	43	5305-00-054-6651	C-6	6
	C-49	51	5305-00-054-6651	C-13	6
	C-50	1	5305-00-054-6652	C-2	10
	C-50	11	5305-00-054-6652	C-7	18
	C-50	21	5305-00-054-6652	C-4	1
	C-50	26	5305-00-054-6653	C-2	5
	C-50	F26	5305-00-054-6653	C-4	23
	C-50	F27	5305-00-054-6653	C-6	7
	C-50	28	5305-00-054-6653	C-7	14
	C-51	1	5305-00-054-6654	C-2	20
	C-51	7	5305-00-054-6654	C-7	13
	C-52	1	5305-00-054-6655	C-9	30
	C-52	11	5305-00-054-6669	C-20	17
	C-52	15	5305-00-054-6669	C-21	39
	C-52	29	5305-00-056-9961	C-21	84
	C-52	33	5305-00-068-5287	C-20	4
	C-53	13	5305-00-104-8340	C-13	11
	C-53	14	5305-00-143-3305	C-23	30
	C-53	15	5305-00-143-3305	C-24	49
	C-53	32	5305-00-210-5162	C-42	14
	C-53	33	5305-00-210-5162	C-48	10
	C-53	39	5305-00-225-6400	C-21	36

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5305-00-225-6400	C-53	8
5305-00-411-0683	C-4	16
5305-00-411-0683	C-9	29
5305-00-582-6151	C-53	42
5305-00-727-8833	C-20	19
5305-00-763-6009	C-21	7
5305-00-763-6009	C-51	10
5305-00-827-5270	C-1	9
5305-00-889-2991	C-21	90
5305-00-903-2194	C-1	5
5305-00-988-7603	C-2	9
5305-01-023-9049	C-22	13
5305-01-049-9121	C-1	10
5305-01-052-3303	C-15	11
5305-01-052-3304	C-2	16
5305-01-070-2969	C-38	11
5305-01-070-2969	C-40	9
5305-01-070-2969	C-44	5
5305-01-070-2969	C-46	11
5305-01-090-9070	C-11	38
5305-01-097-7681	C-21	87
5305-01-097-7681	C-53	40
5305-01-139-2033	C-20	25
5305-01-148-4476	C-1	6
5305-01-148-4476	C-2	35
5307-00-411-4484	C-38	8
5307-00-411-4484	C-40	6
5307-00-411-4484	C-42	11
5307-00-411-4484	C-44	4
5307-00-411-4484	C-46	4
5307-00-411-4484	C-48	15
5307-00-411-4484	C-51	8
5307-00-475-1172	C-53	29
5307-01-046-1052	C-22	12
5310-00-011-6123	C-22	22
5310-00-011-6123	C-38	15
5310-00-043-4708	C-22	20
5310-00-043-4708	C-38	14
5310-00-043-4708	C-40	11
5310-00-043-4708	C-42	17
5310-00-043-4708	C-44	13
5310-00-043-4708	C-46	14
5310-00-043-4708	C-48	4
5310-00-043-4708	C-51	12
5310-00-043-708	C-31	32
5310-00-057-0573	C-22	30
5310-00-057-0573	C-38	18
5310-00-057-0573	C-40	15
5310-00-057-0573	C-42	10
5310-00-057-0573	C-44	18
5310-00-057-0573	C-46	17
5310-00-057-0573	C-48	17
5310-00-057-0573	C-51	16
5310-00-058-3599	C-53	38
5310-00-071-0199	C-3	9
5310-00-073-9190	C-21	10
5310-00-125-9929	C-4	25
5310-00-125-9929	C-7	9
5310-00-125-9929	C-9	1
5310-00-208-3786	C-21	35
5310-00-208-3786	C-39	69
5310-00-208-3786	C-49	57
5310-00-208-3786	C-53	21
5310-00-218-2181	C-53	28
5310-00-250-9477	C-13	17
5310-00-261-7156	C-2	43
5310-00-543-2740	C-13	16
5310-00-543-4652	C-17	40
5310-00-543-4652	C-18	41
5310-00-543-4652	C-40	12
5310-00-543-4652	C-42	18
5310-00-543-4652	C-44	15
5310-00-543-4652	C-46	16
5310-00-543-4652	C-48	6
5310-00-543-4652	C-51	13
5310-00-550-3715	C-1	3
5310-00-550-3715	C-2	28
5310-00-550-3715	C-4	26
5310-00-550-3715	C-5	5
5310-00-550-3715	C-6	12
5310-00-550-3715	C-7	16
5310-00-550-3715	C-8	10
5310-00-550-3715	C-13	2
5310-00-550-3715	C-15	16
5310-00-595-6211	C-1	4
5310-00-595-6211	C-2	29
5310-00-595-6211	C-4	20
5310-00-595-6211	C-5	4
5310-00-595-6211	C-6	13
5310-00-595-6211	C-7	15
5310-00-595-6211	C-8	2
5310-00-595-6211	C-8	9
5310-00-595-6211	C-13	5
5310-00-595-6211	C-15	15
5310-00-595-6211	C-21	18
5310-00-595-6211	C-39	68
5310-00-595-6211	C-49	55
5310-00-595-6211	C-53	7
5310-00-595-6761	C-21	33
5310-00-616-3555	C-2	4

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5310-00-616-3555	C-4	12	5310-00-938-2013	C-31	31
5310-00-616-3555	C-6	3	5310-01-004-4834	C-11	39
5310-00-616-3555	C-7	6	5310-01-010-6538	C-21	27
5310-00-616-3555	C-8	14	5310-01-010-6538	C-42	3
5310-00-616-3555	C-9	3	5310-01-039-7460	C-53	31
5310-00-616-3555	C-15	10	5320-00-117-6010	C-21	69
5310-00-619-5280	C-53	19	5320-00-117-6814	C-43	38
5310-00-722-5998	C-2	3	5320-00-117-6886	C-21	14
5310-00-722-5998	C-4	14	5320-00-117-6929	C-21	11
5310-00-722-5998	C-6	4	5320-00-117-6938	C-21	4
5310-00-722-5998	C-7	5	5320-00-117-6951	C-21	6
5310-00-722-5998	C-8	13	5320-00-119-6754	C-39	65
5310-00-722-5998	C-9	2	5320-00-243-8357	C-31	17
5310-00-722-5998	C-13	3	5320-00-243-8357	C-32	6
5310-00-722-5998	C-15	9	5320-00-243-8357	C-33	6
5310-00-782-1349	C-53	36	5320-00-243-8357	C-34	3
5310-00-800-0074	C-20	8	5320-00-243-8357	C-35	6
5310-00-802-4701	C-5	7	5320-00-243-8357	C-36	6
5310-00-812-4294	C-22	19	5320-00-243-8357	C-37	6
5310-00-812-4294	C-38	17	5320-00-534-0609	C-21	74
5310-00-812-4294	C-40	14	5320-00-619-4098	C-3	7
5310-00-812-4294	C-42	20	5320-00-721-5245	C-45	38
5310-00-812-4294	C-44	12	5325-00-074-3301	C-4	10
5310-00-812-4294	C-46	13	5325-00-074-3301	C-9	31
5310-00-812-4294	C-48	7	5325-00-758-0113	C-21	3
5310-00-812-4294	C-51	15	5325-00-831-3400	C-22	3
5310-00-849-1984	C-53	16	5325-00-831-3400	C-53	17
5310-00-880-5978	C-20	16	5330-01-033-0334	C-21	37
5310-00-928-2690	C-22	21	5340-00-024-6679	C-2	39
5310-00-928-2690	C-31	30	5340-00-120-2035	C-39	64
5310-00-928-2690	C-38	16	5340-00-367-3631	C-22	31
5310-00-928-2690	C-40	13	5340-00-759-6438	C-20	13
5310-00-928-2690	C-42	19	5340-00-759-6438	C-21	38
5310-00-928-2690	C-44	14	5340-01-054-8824	C-6	9
5310-00-928-2690	C-46	15	5340-01-054-8824	C-7	3
5310-00-928-2690	C-48	5	5340-01-054-8824	C-15	18
5310-00-928-2690	C-51	14	5340-01-074-4183	C-53	24
5310-00-933-8118	C-21	17	5340-01-076-1773	C-53	18
5310-00-933-8118	C-49	56	5340-01-090-4382	C-2	2
5310-00-933-8118	C-53	20	5340-01-103-0189	C-21	89
5310-00-934-9748	C-1	2	5365-00-598-5394	C-53	11
5310-00-934-9748	C-2	24	5365-00-828-8526	C-53	10
5310-00-934-9748	C-4	27	5365-01-076-5502	C-53	34
5310-00-934-9748	C-15	17	5811-01-102-9136	C-21	23
5310-00-934-9761	C-4	11	5821-01-073-5999	C-24	46
5310-00-934-9761	C-6	2	5865-01-066-1617	C-21	51
5310-00-934-9761	C-7	7	5865-01-066-1618	C-21	9
5310-00-934-9761	C-8	15	5865-01-066-1619	C-21	47
5310-00-934-9761	C-9	4	5865-01-066-1620	C-21	50
5310-00-934-9761	C-2	1	5865-01-066-1621	C-21	48

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5865-01-066-1644	C-21	24
5865-01-066-1646	C-21	22
5865-01-066-1647	C-21	25
5865-01-066-3234	C-21	20
5865-01-066-4331	C-21	66
5865-01-066-4332	C-21	63
5865-01-066-4333	C-21	59
5865-01-066-4345	C-21	68
5865-01-066-4346	C-21	67
5865-01-066-4347	C-21	65
5865-01-066-4348	C-21	64
5865-01-066-4349	C-21	62
5865-01-066-4350	C-21	61
5865-01-066-4351	C-21	60
5865-01-066-4352	C-21	58
5865-01-066-4353	C-21	56
5865-01-066-4354	C-21	80
5865-01-066-4355	C-21	77
5865-01-066-7363	C-21	53
5865-01-066-7515	C-21	57
5865-01-071-1866	C-21	49
5865-01-106-0928	C-22	27
5865-01-106-0930	C-42	5
5865-01-248-7490	C-22	28
5865-01-248-7491	C-51	2
5865-01-248-7492	C-21	26
5865-01-248-7493	C-38	1
5865-01-248-7495	C-44	3
5865-01-248-7496	C-9	6
5865-01-248-7497	C-2	14
5865-01-248-7498	C-2	15
5865-01-248-7499	C-9	8
5865-01-248-7500	C-15	7
5865-01-248-7501	C-2	13
5865-01-248-7551	C-48	0
5865-01-248-7552	C-48	0
5865-01-249-0377	C-22	26
5865-01-249-0378	C-40	F1
5865-01-249-0379	C-46	0
5865-02-066-1616	C-21	52
5900-01-064-9303	C-39	18
5905-00-005-3369	C-10	32
5905-00-005-3369	C-19	42
5905-00-005-3369	C-19	42
5905-00-005-3369	C-19	45
5905-00-005-3369	C-19	52
5905-00-005-3370	C-17	27
5905-00-005-3370	C-18	28
5905-00-005-3370	C-19	42
5905-00-005-7174	C-10	32
5905-00-005-7174	C-19	43
5905-00-005-7174	C-19	44
5905-00-005-7174	C-19	45
5905-00-008-6822	C-50	30
5905-00-028-9379	C-23	22
5905-00-028-9379	C-24	27
5905-00-028-9379	C-24	40
5905-00-028-9379	C-39	25
5905-00-028-9379	C-47	42
5905-00-028-9379	C-49	27
5905-00-028-9379	C-52	18
5905-00-028-9448	C-39	27
5905-00-028-9448	C-49	26
5905-00-028-9454	C-39	28
5905-00-028-9521	C-39	29
5905-00-028-9522	C-39	30
5905-00-028-9522	C-49	28
5905-00-028-9523	C-23	23
5905-00-028-9523	C-24	32
5905-00-028-9523	C-39	31
5905-00-078-7060	C-14	3
5905-00-078-7060	C-17	21
5905-00-078-7060	C-18	21
5905-00-078-7066	C-4	24
5905-00-078-7066	C-7	8
5905-00-078-7066	C-8	17
5905-00-078-7066	C-14	7
5905-00-078-7066	C-17	15
5905-00-078-7066	C-18	15
5905-00-078-7067	C-10	32
5905-00-078-7067	C-14	12
5905-00-078-7067	C-19	36
5905-00-078-7067	C-19	43
5905-00-078-7067	C-19	44
5905-00-078-7067	C-19	45
5905-00-078-7077	C-17	14
5905-00-078-7077	C-18	14
5905-00-078-7077	C-19	42
5905-00-078-7079	C-19	42
5905-00-078-7086	C-17	31
5905-00-078-7087	C-10	32
5905-00-078-7087	C-19	45
5905-00-093-5437	C-39	26
5905-00-093-5437	C-49	25
5905-00-104-8330	C-10	32
5905-00-104-8330	C-19	43
5905-00-104-8330	C-19	44
5905-00-104-8330	C-19	45
5905-00-104-8331	C-10	32
5905-00-104-8331	C-14	10

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5905-00-104-8331	C-14	15	5905-00-106-1356	C-45	27
5905-00-104-8331	C-19	43	5905-00-106-1356	C-50	38
5905-00-104-8331	C-19	44	5905-00-106-3666	C-11	28
5905-00-104-8331	C-19	45	5905-00-106-3666	C-41	41
5905-00-104-8335	C-10	32	5905-00-106-3666	C-43	17
5905-00-104-8335	C-19	43	5905-00-106-3666	C-47	62
5905-00-104-8335	C-19	44	5905-00-106-3666	C-50	44
5905-00-104-8335	C-19	45	5905-00-106-3667	C-39	52
5905-00-104-8336	C-10	21	5905-00-106-3668	C-41	21
5905-00-104-8339	C-19	43	5905-00-106-9344	C-33	39
5905-00-104-8340	C-5	12	5905-00-106-9344	C-52	23
5905-00-104-8340	C-10	32	5905-00-106-9345	C-10	32
5905-00-104-8340	C-17	13	5905-00-106-9345	C-19	42
5905-00-104-8340	C-18	13	5905-00-106-9345	C-19	43
5905-00-104-8340	C-19	30	5905-00-106-9345	C-19	44
5905-00-104-8340	C-19	43	5905-00-106-9345	C-19	45
5905-00-104-8340	C-19	44	5905-00-106-9345	C-19	49
5905-00-104-8340	C-19	45	5905-00-106-9351	C-10	32
5905-00-104-8346	C-10	32	5905-00-106-9351	C-17	36
5905-00-104-8346	C-14	14	5905-00-106-9351	C-18	37
5905-00-104-8346	C-19	42	5905-00-106-9351	C-19	43
5905-00-104-8346	C-19	43	5905-00-106-9351	C-19	44
5905-00-104-8346	C-19	44	5905-00-106-9351	C-19	45
5905-00-104-8346	C-19	45	5905-00-106-9356	C-41	42
5905-00-104-8346	C-19	48	5905-00-106-9356	C-47	63
5905-00-104-8350	C-34	22	5905-00-106-9356	C-50	45
5905-00-104-8358	C-35	24	5905-00-110-0388	C-11	41
5905-00-104-8358	C-43	12	5905-00-110-0388	C-33	35
5905-00-104-8362	C-50	37	5905-00-110-0388	C-43	27
5905-00-104-8369	C-10	19	5905-00-110-7620	C-10	31
5905-00-104-8369	C-43	13	5905-00-110-7620	C-11	24
5905-00-104-8369	C-45	14	5905-00-110-7620	C-33	38
5905-00-104-8370	C-39	55	5905-00-110-7620	C-35	17
5905-00-104-8370	C-41	26	5905-00-110-7620	C-41	34
5905-00-105-7764	C-39	56	5905-00-110-7620	C-43	15
5905-00-105-7764	C-41	36	5905-00-110-7620	C-45	19
5905-00-105-7764	C-43	22	5905-00-110-7620	C-47	56
5905-00-105-7768	C-41	28	5905-00-110-7620	C-50	36
5905-00-105-7768	C-47	53	5905-00-110-7622	C-10	26
5905-00-105-7768	C-50	48	5905-00-110-7622	C-33	30
5905-00-106-1273	C-10	32	5905-00-110-7622	C-43	14
5905-00-106-1273	C-19	43	5905-00-110-7622	C-45	15
5905-00-106-1273	C-19	44	5905-00-110-7622	C-47	61
5905-00-106-1273	C-19	45	5905-00-110-7622	C-50	42
5905-00-106-1282	C-10	32	5905-00-111-1679	C-35	23
5905-00-106-1282	C-19	43	5905-00-111-1679	C-41	40
5905-00-106-1282	C-19	44	5905-00-111-1679	C-47	60
5905-00-106-1282	C-19	45	5905-00-111-4727	C-41	37
5905-00-106-1356	C-35	18	5905-00-111-4733	C-19	43
5905-00-106-1356	C-43	16	5905-00-111-4739	C-19	43

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5905-00-111-4742	C-17	41
5905-00-111-4742	C-18	27
5905-00-111-4744	C-10	32
5905-00-111-4744	C-19	44
5905-00-111-4744	C-19	45
5905-00-111-4746	C-10	32
5905-00-111-4746	C-19	43
5905-00-111-4746	C-19	44
5905-00-111-4746	C-19	45
5905-00-111-4840	C-19	43
5905-00-111-4840	C-19	44
5905-00-111-4841	C-10	32
5905-00-111-4841	C-19	43
5905-00-111-4841	C-19	44
5905-00-111-4841	C-19	45
5905-00-111-6010	C-19	43
5905-00-113-4854	C-10	32
5905-00-113-4854	C-19	43
5905-00-113-4854	C-19	44
5905-00-113-4854	C-19	45
5905-00-114-0711	C-35	22
5905-00-114-0711	C-41	39
5905-00-114-0711	C-52	21
5905-00-114-0711	C-33	37
5905-00-114-5339	C-33	36
5905-00-114-5359	C-10	32
5905-00-114-5359	C-19	43
5905-00-114-5359	C-19	44
5905-00-114-5359	C-19	45
5905-00-114-5361	C-49	42
5905-00-114-5378	C-10	32
5905-00-114-5378	C-19	43
5905-00-114-5378	C-19	44
5905-00-114-5378	C-19	45
5905-00-114-5393	C-10	32
5905-00-114-5393	C-19	43
5905-00-114-5393	C-19	44
5905-00-114-5393	C-19	45
5905-00-114-5401	C-19	43
5905-00-114-5401	C-19	44
5905-00-114-5401	C-19	45
5905-00-114-5401	C-10	32
5905-00-114-5416	C-10	32
5905-00-114-5416	C-14	13
5905-00-114-5416	C-19	43
5905-00-114-5416	C-19	44
5905-00-114-5416	C-19	45
5905-00-114-5425	C-17	24
5905-00-114-5425	C-18	24
5905-00-114-5425	C-19	40
5905-00-114-5425	C-19	42
5905-00-114-5428	C-10	32
5905-00-114-5428	C-19	43
5905-00-114-5428	C-19	44
5905-00-114-5428	C-19	45
5905-00-114-5430	C-10	32
5905-00-114-5430	C-19	43
5905-00-114-5430	C-19	44
5905-00-114-5430	C-19	45
5905-00-114-5441	C-10	32
5905-00-114-5441	C-19	32
5905-00-114-5441	C-19	43
5905-00-114-5441	C-19	44
5905-00-114-5441	C-19	45
5905-00-114-5456	C-19	43
5905-00-114-5489	C-10	32
5905-00-114-5489	C-19	43
5905-00-114-5489	C-19	44
5905-00-114-5489	C-19	45
5905-00-115-7953	C-39	52
5905-00-115-7953	C-45	17
5905-00-115-7953	C-47	43
5905-00-116-2394	C-50	35
5905-00-116-8556	C-11	34
5905-00-116-8556	C-33	32
5905-00-116-8557	C-10	32
5905-00-116-8557	C-19	43
5905-00-116-8557	C-19	44
5905-00-116-8557	C-19	45
5905-00-116-8560	C-10	32
5905-00-116-8560	C-19	43
5905-00-116-8560	C-19	44
5905-00-116-8560	C-19	45
5905-00-116-8562	C-18	29
5905-00-116-8568	C-10	32
5905-00-116-8568	C-19	44
5905-00-116-8568	C-19	45
5905-00-116-8570	C-10	32
5905-00-116-8570	C-19	44
5905-00-116-8570	C-19	45
5905-00-118-4559	C-10	18
5905-00-119-3504	C-50	46
5905-00-119-8811	C-11	29
5905-00-119-8855	C-23	21
5905-00-119-8855	C-45	18
5905-00-120-9154	C-32	11
5905-00-120-9154	C-33	29
5905-00-120-9154	C-37	18
5905-00-120-9154	C-39	54
5905-00-120-9154	C-43	25

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5905-00-120-9154	C-47	52	5905-00-141-0596	C-19	34
5905-00-121-9920	C-43	23	5905-00-141-0596	C-19	43
5905-00-121-9922	C-17	29	5905-00-141-0596	C-19	44
5905-00-121-9922	C-18	31	5905-00-141-0596	C-19	45
5905-00-122-0004	C-50	47	5905-00-141-0597	C-10	32
5905-00-125-0679	C-31	20	5905-00-141-0597	C-19	43
5905-00-125-0704	C-24	31	5905-00-141-0597	C-19	44
5905-00-125-0704	C-49	30	5905-00-141-0597	C-19	45
5905-00-125-0844	C-24	35	5905-00-141-0600	C-10	32
5905-00-125-0844	C-39	34	5905-00-141-0600	C-19	44
5905-00-125-0846	C-34	29	5905-00-141-0600	C-19	45
5905-00-125-0846	C-39	35	5905-00-141-0717	C-33	34
5905-00-125-0847	C-39	36	5905-00-141-0723	C-19	39
5905-00-125-0874	C-39	37	5905-00-141-0725	C-10	32
5905-00-125-0876	C-24	30	5905-00-141-0725	C-19	43
5905-00-125-0876	C-39	38	5905-00-141-0725	C-19	44
5905-00-125-0883	C-24	28	5905-00-141-0725	C-19	45
5905-00-125-0884	C-31	18	5905-00-141-0742	C-31	25
5905-00-125-0884	C-34	31	5905-00-141-0743	C-43	31
5905-00-125-0886	C-34	32	5905-00-141-0743	C-47	59
5905-00-126-6692	C-47	46	5905-00-141-0743	C-41	38
5905-00-126-6696	C-47	54	5905-00-141-1071	C-11	33
5905-00-131-1255	C-45	28	5905-00-141-1071	C-19	43
5905-00-131-9729	C-35	21	5905-00-141-1071	C-19	44
5905-00-131-9729	C-43	29	5905-00-141-1116	C-10	32
5905-00-131-9729	C-45	16	5905-00-141-1116	C-19	45
5905-00-131-9729	C-47	58	5905-00-141-1116	C-19	45
5905-00-135-3972	C-11	27	5905-00-141-1116	C-19	53
5905-00-135-6046	C-41	30	5905-00-141-1116	C-19	44
5905-00-135-6046	C-47	66	5905-00-141-1132	C-50	43
5905-00-136-3890	C-35	25	5905-00-141-1144	C-11	32
5905-00-136-3890	C-43	30	5905-00-141-1165	C-10	32
5905-00-136-3891	C-10	20	5905-00-141-1165	C-19	42
5905-00-136-3891	C-41	29	5905-00-141-1165	C-19	44
5905-00-136-7103	C-10	29	5905-00-141-1165	C-19	45
5905-00-136-8405	C-11	23	5905-00-141-1165	C-19	47
5905-00-136-8406	C-35	20	5905-00-141-1183	C-35	15
5905-00-136-8406	C-50	40	5905-00-141-1183	C-39	51
5905-00-136-8431	C-45	12	5905-00-141-1183	C-41	23
5905-00-137-4824	C-35	29	5905-00-141-1183	C-47	48
5905-00-137-4824	C-41	44	5905-00-141-1183	C-50	32
5905-00-137-4824	C-47	64	5905-00-141-1183	C-52	20
5905-00-141-0595	C-10	32	5905-00-141-1187	C-10	32
5905-00-141-0595	C-14	4	5905-00-141-1187	C-17	19
5905-00-141-0595	C-19	43	5905-00-141-1187	C-18	19
5905-00-141-0595	C-19	45	5905-00-141-1187	C-19	43
5905-00-141-0595	C-19	54	5905-00-141-1187	C-19	44
5905-00-141-0596	C-10	32	5905-00-141-1187	C-19	45
5905-00-141-0596	C-17	35	5905-00-141-1268	C-19	42
5905-00-141-0596	C-18	36	5905-00-141-1747	C-39	47

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5905-00-141-1761	C-34	28
5905-00-141-1761	C-35	26
5905-00-141-1777	C-35	26
5905-00-141-1855	C-33	28
5905-00-141-1855	C-39	52
5905-00-141-1855	C-41	20
5905-00-141-1855	C-52	19
5905-00-141-1869	C-35	14
5905-00-141-1869	C-39	51
5905-00-141-1869	C-45	13
5905-00-141-1869	C-47	45
5905-00-141-1878	C-47	47
5905-00-141-1883	C-31	26
5905-00-141-1883	C-43	21
5905-00-141-1883	C-47	49
5905-00-141-1885	C-39	51
5905-00-141-1885	C-41	55
5905-00-141-1887	C-43	20
5905-00-141-1888	C-41	24
5905-00-141-1888	C-43	24
5905-00-141-1888	C-49	29
5905-00-141-1888	C-50	33
5905-00-141-1895	C-41	25
5905-00-141-1895	C-43	26
5905-00-141-1895	C-47	50
5905-00-141-1897	C-39	57
5905-00-141-1897	C-50	34
5905-00-141-2002	C-31	24
5905-00-141-2002	C-39	53
5905-00-141-2002	C-43	19
5905-00-141-2002	C-47	51
5905-00-141-2003	C-35	16
5905-00-141-2144	C-41	32
5905-00-141-2146	C-47	57
5905-00-141-2421	C-33	31
5905-00-145-3657	C-52	31
5905-00-150-5414	C-41	43
5905-00-157-8939	C-35	30
5905-00-158-9872	C-34	23
5905-00-158-9872	C-41	22
5905-00-158-9872	C-47	44
5905-00-159-8217	C-35	27
5905-00-180-8303	C-31	21
5905-00-180-8303	C-39	49
5905-00-223-2469	C-14	8
5905-00-223-2469	C-17	25
5905-00-223-2469	C-18	25
5905-00-223-2469	C-19	33
5905-00-223-2469	C-19	42
5905-00-228-6096	C-49	41
5905-00-229-8890	C-10	32
5905-00-229-8890	C-19	44
5905-00-229-8890	C-19	45
5905-00-232-3114	C-24	36
5905-00-236-9856	C-18	33
5905-00-236-9856	C-17	33
5905-00-243-3129	C-52	30
5905-00-244-6555	C-17	22
5905-00-264-4066	C-50	28
5905-00-284-5015	C-50	28
5905-00-400-4528	C-33	33
5905-00-405-7841	C-18	16
5905-00-419-3895	C-50	27
5905-00-420-3297	C-10	24
5905-00-432-9308	C-50	27
5905-00-434-1758	C-17	16
5905-00-436-8782	C-17	32
5905-00-439-0428	C-52	26
5905-00-442-9356	C-39	52
5905-00-444-0291	C-49	39
5905-00-445-1563	C-50	27
5905-00-448-2445	C-18	22
5905-00-455-2296	C-14	11
5905-00-455-2296	C-19	43
5905-00-455-2298	C-10	32
5905-00-455-2298	C-19	43
5905-00-455-2298	C-19	44
5905-00-455-2298	C-19	45
5905-00-455-4403	C-11	22
5905-00-461-2214	C-35	28
5905-00-461-2214	C-49	38
5905-00-461-8992	C-50	29
5905-00-463-8149	C-50	27
5905-00-478-4224	C-52	28
5905-00-478-7365	C-52	34
5905-00-481-7871	C-19	41
5905-00-482-5110	C-17	23
5905-00-482-5110	C-18	23
5905-00-483-0408	C-24	26
5905-00-485-4554	C-41	33
5905-00-485-4554	C-47	55
5905-00-489-0637	C-50	28
5905-00-497-0865	C-52	36
5905-00-497-0866	C-52	38
5905-00-503-6218	C-5	9
5905-00-515-7266	C-39	33
5905-00-515-7297	C-39	39
5905-00-519-0510	C-34	25
5905-00-519-0531	C-35	26
5905-00-519-0535	C-39	48

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5905-00-519-0559	C-34	27	5905-00-665-4992	C-5	11
5905-00-568-7225	C-34	26	5905-00-689-3019	C-10	32
5905-00-568-7225	C-39	32	5905-00-689-3019	C-19	43
5905-00-568-7228	C-23	24	5905-00-689-3019	C-19	44
5905-00-568-7228	C-39	40	5905-00-689-3019	C-19	45
5905-00-568-7228	C-47	41	5905-00-689-3020	C-10	32
5905-00-568-7228	C-49	31	5905-00-689-3020	C-14	9
5905-00-568-7234	C-39	41	5905-00-689-3020	C-17	17
5905-00-568-7234	C-49	40	5905-00-689-3020	C-18	17
5905-00-568-7472	C-23	25	5905-00-689-3020	C-19	43
5905-00-568-7472	C-39	40	5905-00-689-3020	C-19	45
5905-00-568-7472	C-39	42	5905-00-689-3020	C-19	45
5905-00-568-7497	C-24	34	5905-00-689-3021	C-8	18
5905-00-568-7497	C-39	50	5905-00-689-3021	C-19	31
5905-00-568-7503	C-49	33	5905-00-689-3022	C-19	42
5905-00-568-7504	C-24	37	5905-00-689-3022	C-19	42
5905-00-568-7504	C-39	43	5905-00-689-3022	C-19	50
5905-00-568-7504	C-49	32	5905-00-760-0519	C-35	31
5905-00-568-7508	C-31	22	5905-00-760-0519	C-52	24
5905-00-568-7508	C-39	44	5905-00-763-9182	C-52	32
5905-00-568-7508	C-49	34	5905-00-784-3209	C-50	27
5905-00-568-7509	C-39	40	5905-00-813-5892	C-41	45
5905-00-568-7509	C-39	45	5905-00-889-0071	C-9	7
5905-00-568-7510	C-32	10	5905-00-890-5637	C-39	51
5905-00-568-7510	C-34	30	5905-00-890-5637	C-43	28
5905-00-568-7510	C-39	46	5905-00-932-5095	C-43	18
5905-00-568-7510	C-49	24	5905-00-932-5095	C-50	41
5905-00-568-7512	C-49	35	5905-00-935-8539	C-14	6
5905-00-568-7684	C-24	29	5905-00-935-8539	C-19	42
5905-00-568-7684	C-31	19	5905-00-935-8542	C-10	32
5905-00-568-7684	C-49	36	5905-00-935-8542	C-19	43
5905-00-568-7689	C-24	38	5905-00-935-8542	C-19	44
5905-00-568-7712	C-23	26	5905-00-935-8542	C-19	45
5905-00-568-7712	C-24	33	5905-00-935-8543	C-17	28
5905-00-568-7712	C-24	41	5905-00-997-2192	C-35	19
5905-00-568-7712	C-31	23	5905-00-997-2192	C-41	35
5905-00-568-7712	C-34	24	5905-00-997-2192	C-50	39
5905-00-568-7712	C-49	37	5905-01-025-0692	C-52	25
5905-00-570-8265	C-17	30	5905-01-035-4581	C-19	42
5905-00-570-8265	C-18	30	5905-01-035-4581	C-19	51
5905-00-570-8265	C-19	38	5905-01-035-4582	C-10	32
5905-00-576-5273	C-19	35	5905-01-035-4582	C-19	43
5905-00-577-1760	C-13	12	5905-01-035-4582	C-19	45
5905-00-577-1761	C-13	19	5905-01-035-4585	C-19	29
5905-00-577-1761	C-20	12	5905-01-035-4587	C-10	32
5905-00-596-0763	C 52	22	5905-01-035-4587	C-14	30
5905-00-608-7454	C-10	32	5905-01-035-4587	C-19	44
5905-00-608-7454	C-19	43	5905-01-035-4587	C-19	45
5905-00-608-7454	C-19	44	5905-01-035-4587	C-19	43
5905-00-608-7454	C-19	45	5905-01-035-4588	C-17	20

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5905-01-035-4588	C-18	20
5905-01-035-4590	C-10	32
5905-01-035-4590	C-19	43
5905-01-035-4590	C-19	44
5905-01-035-4590	C-19	45
5905-01-035-4852	C-19	44
5905-01-035-8068	C-14	5
5905-01-035-8068	C-19	42
5905-01-037-1211	C-18	32
5905-01-042-1174	C-19	42
5905-01-051-5461	C-10	32
5905-01-051-5461	C-19	37
5905-01-051-5461	C-19	43
5905-01-051-5461	C-19	44
5905-01-051-5461	C-19	45
5905-01-053-7629	C-10	32
5905-01-053-7629	C-19	43
5905-01-053-7629	C-19	44
5905-01-053-7629	C-19	45
5905-01-055-6915	C-10	28
5905-01-069-0250	C-15	13
5905-01-070-3508	C-35	33
5905-01-070-3508	C-52	35
5905-01-075-2485	C-47	65
5905-01-077-9821	C-33	40
5905-01-077-9821	C-41	47
5905-01-077-9821	C-52	37
5905-01-080-6278	C-50	31
5905-01-080-6278	C-52	27
5905-01-085-1164	C-10	17
5905-01-088-2787	C-41	46
5905-01-088-2787	C-35	32
5905-01-101-4528	C-19	43
5905-01-137-0111	C-10	16
5905-01-139-5314	C-11	26
5905-01-146-4349	C-11	25
5905-01-150-4491	C-10	30
5905-01-150-4517	C-11	31
5905-01-159-7544	C-36	11
5905-01-160-0032	C-11	30
5905-01-189-6326	C-10	23
5905-01-193-1885	C-50	28
5905-01-196-1968	C-10	25
5905-01-239-4722	C-6	17
5905-01-248-7474	C-2	41
5905-01-689-3020	C-19	44
5905-01-689-3020	C-19	55
5910-00-007-2002	C-11	14
5910-00-007-2002	C-33	11
5910-00-007-2002	C-35	10
5910-00-007-2002	C-49	13
5910-00-007-7183	C-6	10
5910-00-010-8666	C-14	22
5910-00-010-8717	C-24	3
5910-00-010-8717	C-31	8
5910-00-068-4302	C-10	14
5910-00-068-4302	C-11	15
5910-00-072-7647	C-24	12
5910-00-072-7647	C-31	7
5910-00-072-7647	C-32	7
5910-00-072-7647	C-33	9
5910-00-072-7647	C-34	8
5910-00-072-7647	C-37	7
5910-00-072-7647	C-39	6
5910-00-072-7647	C-49	14
5910-00-072-7647	C-52	3
5910-00-098-9242	C-50	20
5910-00-101-2382	C-49	23
5910-00-113-5276	C-14	17
5910-00-113-5276	C-19	21
5910-00-113-5277	C-33	13
5910-00-113-5490	C-36	9
5910-00-113-5494	C-49	15
5910-00-113-5499	C-23	3
5910-00-113-5499	C-24	5
5910-00-113-5499	C-32	8
5910-00-113-5499	C-33	12
5910-00-113-5499	C-34	9
5910-00-113-5499	C-35	8
5910-00-113-5499	C-37	8
5910-00-113-5499	C-39	3
5910-00-113-5499	C-41	4
5910-00-113-5499	C-43	3
5910-00-113-5499	C-45	4
5910-00-113-5499	C-47	15
5910-00-113-5499	C-49	17
5910-00-113-5499	C-50	18
5910-00-113-5499	C-52	6
5910-00-113-5515	C-19	22
5910-00-113-5610	C-36	8
5910-00-114-0803	C-50	19
5910-00-115-8456	C-34	10
5910-00-115-8456	C-39	4
5910-00-115-8456	C-41	5
5910-00-115-8456	C-49	16
5910-00-121-5986	C-45	9
5910-00-143-0501	C-52	5
5910-00-170-9557	C-31	11
5910-00-170-9557	C-39	13
5910-00-170-9557	C-43	11

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5910-00-170-9557	C-47	26	5910-01-029-4702	C-24	10
5910-00-170-9557	C-49	22	5910-01-029-8907	C-24	7
5910-00-192-7180	C-50	25	5910-01-029-8907	C-41	8
5910-00-248-9683	C-10	12	5910-01-029-8907	C-43	6
5910-00-266-8403	C-33	16	5910-01-029-8907	C-45	10
5910-00-266-8403	C-37	9	5910-01-030-8270	C-24	7
5910-00-481-9037	C-10	13	5910-01-031-0447	C-24	7
5910-00-491-6522	C-10	15	5910-01-031-5372	C-39	7
5910-00-517-9158	C-17	12	5910-01-038-7892	C-41	6
5910-00-517-9158	C-18	12	5910-01-038-7896	C-24	10
5910-00-519-2721	C-24	7	5910-01-038-7898	C-24	10
5910-00-544-5790	C-19	25	5910-01-038-7907	C-24	9
5910-00-546-4209	C-17	9	5910-01-040-7176	C-7	4
5910-00-546-4209	C-18	9	5910-01-042-2367	C-23	4
5910-00-546-4209	C-19	23	5910-01-042-2367	C-41	9
5910-00-546-4209	C-19	28	5910-01-042-2367	C-47	24
5910-00-600-2626	C-19	27	5910-01-042-4453	C-47	17
5910-00-833-6764	C-11	12	5910-01-043-4309	C-39	11
5910-00-838-9421	C-17	11	5910-01-043-5772	C-24	8
5910-00-838-9421	C-18	11	5910-01-043-5772	C-43	7
5910-00-996-0667	C-35	12	5910-01-043-6899	C-24	7
5910-00-996-0667	C-36	10	5910-01-043-8882	C-31	9
5910-00-996-0667	C-45	5	5910-01-043-8882	C-39	8
5910-00-996-0667	C-47	13	5910-01-044-5616	C-24	6
5910-00-996-0667	C-50	24	5910-01-044-7485	C-39	10
5910-00-996-2259	C-33	10	5910-01-044-8558	C-11	21
5910-00-996-2259	C-34	7	5910-01-044-8563	C-24	7
5910-00-996-2259	C-35	11	5910-01-044-8566	C-11	13
5910-00-996-2259	C-39	5	5910-01-050-6504	C-47	18
5910-00-996-2259	C-41	3	5910-01-052-8905	C-24	7
5910-00-996-2259	C-43	10	5910-01-060-9518	C-43	4
5910-00-996-2259	C-47	14	5910-01-060-9518	C-49	18
5910-00-996-2259	C-49	12	5910-01-078-1569	C-14	16
5910-00-996-2259	C-50	23	5910-01-087-6360	C-33	14
5910-00-996-2259	C-52	4	5910-01-087-6360	C-35	13
5910-01-010-6473	C-23	2	5910-01-087-6360	C-41	7
5910-01-010-6473	C-24	4	5910-01-087-6360	C-47	20
5910-01-010-6473	C-35	9	5910-01-087-6360	C-49	20
5910-01-010-6473	C-45	3	5910-01-089-8735	C-23	5
5910-01-010-6473	C-47	16	5910-01-089-8735	C-49	21
5910-01-010-6473	C-50	22	5910-01-090-1530	C-49	19
5910-01-011-3376	C-15	14	5910-01-090-3030	C-11	20
5910-01-015-9238	C-11	18	5910-01-093-6320	C-33	15
5910-01-016-1124	C-10	9	5910-01-093-9498	C-47	19
5910-01-016-1124	C-11	17	5910-01-093-9498	C-22	29
5910-01-019-3858	C-45	11	5910-01-131-3429	C-19	24
5910-01-024-9121	C-24	10	5910-01-206-0485	C-24	10
5910-01-028-9216	C-43	8	5910-01-206-9767	C-24	10
5910-01-028-9220	C-39	12	5910-01-219-4856	C-10	10
5910-01-029-0728	C-24	9	5910-01-219-4856	C-11	16

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5910-01-219-4856	C-17	10
5910-01-219-4856	C-18	10
5910-01-219-4856	C-19	26
5910-01-248-7362	C-14	19
5910-01-248-7363	C-14	20
5910-01-250-8365	C-11	19
5910-01-254-0361	C-9	10
5910-01-254-0361	C-24	13
5910-01-273-7747	C-24	10
5910-01-519-2721	C-41	10
5915-01-034-2934	C-38	4
5915-01-034-2934	C-42	7
5915-01-034-2934	C-44	7
5915-01-034-2934	C-46	5
5915-01-034-2934	C-51	4
5915-01-045-8126	C-22	16
5915-01-045-8126	C-38	5
5915-01-045-8126	C-40	3
5915-01-045-8126	C-42	8
5915-01-045-8126	C-44	9
5915-01-045-8126	C-46	7
5915-01-048-8126	C-48	11
5915-01-064-5721	C-39	15
5915-01-064-9246	C-39	17
5915-01-070-3568	C-39	16
5915-01-250-5983	C-6	18
5916-00-022-4386	C-11	4
5920-01-040-1723	C-2	46
5930-00-009-4602	C-13	18
5930-01-065-3001	C-20	21
5935-00-079-8636	C-22	11
5935-00-079-8636	C-38	3
5935-00-079-8636	C-40	2
5935-00-079-8636	C-42	6
5935-00-079-8636	C-44	6
5935-00-079-8636	C-46	3
5935-00-154-0338	C-45	37
5935-00-262-6083	C-22	23
5935-00-262-6083	C-38	6
5935-00-262-6083	C-40	4
5935-00-262-6083	C-42	9
5935-00-262-6083	C-44	16
5935-00-262-6083	C-48	8
5935-00-262-6083	C-51	5
5935-00-410-9252	C-51	6
5935-00-466-3394	C-22	15
5935-00-466-3394	C-38	10
5935-00-466-3394	C-40	8
5935-00-466-3394	C-42	13
5935-00-466-3394	C-44	8
5935-00-466-3394	C-46	6
5935-00-470-2813	C-28	1
5935-00-490-3743	C-48	14
5935-00-490-5219	C-53	3
5935-00-490-5220	C-53	2
5935-00-490-5220	C-53	9
5935-00-570-6119	C-53	5
5935-00-577-2336	C-12	4
5935-00-578-3489	C-12	3
5935-00-683-5095	C-53	4
5935-00-716-6578	C-53	12
5935-00-761-6901	C-31	16
5935-00-761-6901	C-43	37
5935-00-781-1049	C-53	46
5935-00-925-1147	C-48	13
5935-00-988-6438	C-33	7
5935-00-988-6438	C-37	19
5935-00-995-1647	C-51	3
5935-01-024-1895	C-25	2
5935-01-025-9157	C-28	2
5935-01-025-9157	C-27	1
5935-01-030-3217	C-22	25
5935-01-043-5841	C-27	2
5935-01-056-3253	C-30	1
5935-01-056-3578	C-25	3
5935-01-064-5698	C-26	1
5935-01-064-6817	C-32	5
5935-01-064-7838	C-33	5
5935-01-064-8352	C-35	5
5935-01-065-4186	C-31	2
5935-01-065-4186	C-37	5
5935-01-066-3331	C-53	45
5935-01-081-4711	C-35	7
5935-01-081-4711	C-39	2
5935-01-081-4711	C-41	2
5935-01-081-4711	C-43	2
5935-01-081-4711	C-45	2
5935-01-081-4711	C-47	2
5935-01-081-4711	C-49	52
5935-01-081-4711	C-50	2
5935-01-081-4711	C-52	2
5935-01-081-9988	C-29	1
5935-01-081-9988	C-53	1
5935-01-082-4457	C-26	2
5935-01-082-4457	C-53	22
5935-01-250-8414	C-46	9
5935-01-251-2386	C-4	22
5935-01-270-0112	C-2	42
5940-00-082-5002	C-36	7
5940-00-259-9057	C-22	17

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5940-00-259-9057	C-38	9	5950-01-064-6345	C-24	17
5940-00-259-9057	C-40	7	5950-01-064-9304	C-39	20
5940-00-259-9057	C-42	12	5950-01-064-9306	C-49	8
5940-00-259-9057	C-44	10	5950-01-064-9983	C-23	13
5940-00-259-9057	C-46	8	5950-01-065-4288	C-24	43
5940-00-259-9057	C-48	1	5950-01-065-4293	C-23	12
5940-00-259-9057	C-51	9	5950-01-065-4294	C-23	33
5940-00-328-6397	C-6	5	5950-01-065-4295	C-47	37
5940-00-500-5644	C-14	2	5950-01-065-4296	C-23	32
5940-00-578-9896	C-13	10	5950-01-065-6434	C-43	33
5940-00-665-4766	C-16	3	5950-01-065-6434	C-47	32
5940-00-665-4766	C-15	1	5950-01-065-6435	C-41	16
5940-00-682-2477	C-20	5	5950-01-065-9744	C-49	9
5940-00-682-2477	C-30	3	5950-01-066-0919	C-47	34
5940-00-683-4651	C-5	10	5950-01-066-0920	C-47	35
5940-00-771-8139	C-15	22	5950-01-066-0921	C-50	10
5940-00-815-5511	C-53	30	5950-01-066-0922	C-43	32
5940-00-821-6217	C-9	5	5950-01-066-0923	C-24	14
5940-00-827-2653	C-2	23	5950-01-066-2005	C-47	36
5940-00-839-0828	C-53	35	5950-01-066-3593	C-23	15
5940-00-901-7285	C-9	11	5950-01-066-6243	C-39	66
5940-00-918-8068	C-53	37	5950-01-066-6244	C-39	62
5940-01-144-0438	C-9	17	5950-01-066-6245	C-39	61
5950-00-116-4980	C-9	21	5950-01-066-6246	C-39	60
5950-01-064-4794	C-47	67	5950-01-066-6247	C-39	59
5950-01-064-4799	C-43	34	5950-01-066-6248	C-39	58
5950-01-064-5730	C-41	48	5950-01-066-7514	C-49	6
5950-01-064-6314	C-24	44	5950-01-068-0867	C-23	14
5950-01-064-6315	C-24	42	5950-01-069-1819	C-39	19
5950-01-064-6323	C-24	45	5950-01-082-5649	C-47	68
5950-01-064-6335	C-31	13	5950-01-082-6838	C-23	18
5950-01-064-6335	C-32	9	5950-01-103-7799	C-23	19
5950-01-064-6335	C-35	34	5950-01-103-7800	C-23	20
5950-01-064-6335	C-36	22	5950-01-120-5036	C-23	11
5950-01-064-6335	C-37	10	5950-01-179-7928	C-47	31
5950-01-064-6335	C-41	12	5950-01-182-2527	C-45	21
5950-01-064-6335	C-45	39	5950-01-187-8035	C-23	9
5950-01-064-6335	C-47	33	5950-01-248-7475	C-45	20
5950-01-064-6335	C-49	7	5950-01-248-7476	C-45	22
5950-01-064-6335	C-50	12	5950-01-248-7477	C-45	23
5950-01-064-6335	C-52	7	5950-01-248-7478	C-45	24
5950-01-064-6336	C-31	14	5950-01-248-7479	C-45	25
5950-01-064-6337	C-23	10	5950-01-248-7480	C-45	26
5950-01-064-6338	C-23	16	5950-01-250-3250	C-11	36
5950-01-064-6339	C-23	17	5955-00-892-3812	C-43	36
5950-01-064-6340	C-23	31	5955-01-065-6438	C-45	29
5950-01-064-6341	C-23	28	5955-01-065-6439	C-45	36
5950-01-064-6342	C-23	27	5955-01-065-8064	C-45	30
5950-01-064-6343	C-24	15	5955-01-066-2008	C-45	34
5950-01-064-6344	C-24	16	5955-01-066-3606	C-45	33

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM
5955-01-067-2557	C-45	35
5955-01-107-5273	C-45	32
5955-01-122-2515	C-45	31
5961-00-022-4386	C-17	6
5961-00-022-4386	C-18	6
5961-00-022-5665	C-47	38
5961-00-022-5666	C-24	48
5961-00-022-5666	C-31	27
5961-00-022-5666	C-39	21
5961-00-022-5666	C-43	44
5961-00-022-5666	C-45	41
5961-00-022-5666	C-47	39
5961-00-101-2289	C-18	5
5961-00-101-2289	C-19	7
5961-00-105-5736	C-50	16
5961-00-133-2982	C-52	9
5961-00-139-1995	C-14	23
5961-00-163-7157	C-24	22
5961-00-163-7231	C-41	11
5961-00-163-7231	C-43	39
5961-00-163-7231	C-45	40
5961-00-240-2812	C-14	27
5961-00-240-2812	C-19	10
5961-00-272-8374	C-17	7
5961-00-272-8374	C-18	7
5961-00-272-8374	C-19	11
5961-00-324-3079	C-14	24
5961-00-415-5994	C-19	9
5961-00-420-3668	C-49	2
5961-00-421-3040	C-49	4
5961-00-425-9815	C-10	7
5961-00-425-9815	C-11	6
5961-00-431-3245	C-11	5
5961-00-438-0598	C-31	29
5961-00-438-0598	C-41	19
5961-00-438-0598	C-43	43
5961-00-438-0598	C-49	3
5961-00-450-8526	C-50	14
5961-00-476-7855	C-10	5
5961-00-476-7855	C-11	9
5961-00-494-4915	C-33	17
5961-00-494-4915	C-34	13
5961-00-494-4915	C-35	37
5961-00-494-4915	C-43	40
5961-00-494-4915	C-47	28
5961-00-494-4915	C-49	10
5961-00-494-4915	C-50	13
5961-00-494-4915	C-52	8
5961-00-494-4917	C-19	16
5961-00-595-9264	C-41	53
5961-00-626-0041	C-19	15
5961-00-627-0275	C-7	12
5961-00-836-6663	C-31	28
5961-00-836-6663	C-39	24
5961-00-836-6663	C-41	17
5961-00-836-6663	C-43	45
5961-00-858-3826	C-14	26
5961-00-858-3826	C-34	33
5961-00-858-3826	C-39	22
5961-00-858-3826	C-41	18
5961-00-858-3826	C-43	42
5961-00-858-3826	C-47	40
5961-00-938-4978	C-50	17
5961-01-009-2234	C-49	11
5961-01-009-2234	C-50	15
5961-01-010-2064	C-4	17
5961-01-012-8198	C-35	36
5961-01-012-8198	C-41	54
5961-01-017-0992	C-47	29
5961-01-024-2145	C-24	21
5961-01-024-2145	C-35	35
5961-01-026-8942	C-34	12
5961-01-028-1077	C-24	47
5961-01-040-6424	C-7	20
5961-01-041-7304	C-19	14
5961-01-043-9178	C-11	7
5961-01-043-9178	C-17	8
5961-01-043-9178	C-18	8
5961-01-043-9178	C-19	12
5961-01-065-6486	C-43	41
5961-01-065-6731	C-23	8
5961-01-065-7579	C-23	6
5961-01-065-7579	C-24	19
5961-01-065-7579	C-39	14
5961-01-065-7579	C-47	27
5961-01-082-5562	C-49	5
5961-01-088-8346	C-19	20
5961-01-095-0046	C-19	17
5961-01-102-5719	C-11	11
5961-01-102-5719	C-19	13
5961-01-126-5349	C-19	18
5961-01-156-7901	C-9	28
5961-01-159-2481	C-24	18
5961-01-165-7903	C-24	20
5961-01-206-3973	C-19	19
5961-01-250-6844	C-11	10
5962-00-101-2289	C-17	5
5962-00-131-9460	C-52	14
5962-00-167-6330	C-34	15
5962-00-167-6330	C-35	39

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5962-00-167-6330	C-41	52	5962-01-050-0921	C-37	13
5962-00-167-6330	C-47	7	5962-01-059-7852	C-41	50
5962-00-173-9776	C-35	46	5962-01-059-7852	C-47	9
5962-00-173-9776	C-37	14	5962-01-065-0190	C-24	23
5962-00-257-9226	C-33	22	5962-01-066-1153	C-36	18
5962-00-257-9226	C-37	16	5962-01-068-9593	C-36	16
5962-00-262-0652	C-32	13	5962-01-070-8432	C-19	6
5962-00-262-0652	C-34	18	5962-01-070-8432	C-49	48
5962-00-302-3963	C-45	42	5962-01-074-4122	C-36	14
5962-00-302-3963	C-50	7	5962-01-075-8589	C-10	3
5962-00-318-2223	C-43	47	5962-01-086-0293	C-37	15
5962-00-318-2223	C-47	5	5962-01-086-1999	C-52	16
5962-00-318-2223	C-49	50	5962-01-086-7634	C-36	20
5962-00-341-0544	C-45	43	5962-01-090-0727	C-43	46
5962-00-349-2715	C-49	49	5962-01-091-8195	C-36	13
5962-00-361-8732	C-45	44	5962-01-093-0110	C-36	12
5962-00-369-7606	C-33	21	5962-01-093-8823	C-36	19
5962-00-369-7606	C-34	19	5962-01-096-4171	C-36	17
5962-00-369-7706	C-49	44	5962-01-101-4023	C-52	17
5962-00-369-7730	C-49	45	5962-01-107-6925	C-33	26
5962-00-390-7958	C-33	23	5962-01-107-6925	C-34	14
5962-00-390-7958	C-50	8	5962-01-107-6925	C-47	12
5962-00-390-7970	C-32	15	5962-01-107-6925	C-50	9
5962-00-390-7970	C-33	24	5962-01-107-6925	C-52	13
5962-00-390-7970	C-34	21	5962-01-107-9039	C-41	49
5962-00-390-7970	C-35	43	5962-01-109-9019	C-47	3
5962-00-390-7970	C-47	8	5962-01-119-1379	C-11	3
5962-00-390-7970	C-52	10	5962-01-127-2672	C-18	4
5962-00-390-8014	C-32	14	5962-01-131-6195	C-33	20
5962-00-396-2262	C-34	20	5962-01-131-6195	C-34	16
5962-00-396-2262	C-35	42	5962-01-176-8296	C-17	4
5962-00-430-2600	C-47	11	5962-01-215-0975	C-36	21
5962-00-430-2737	C-24	25	5962-01-215-2356	C-41	51
5962-00-436-0889	C-49	47	5962-01-249-8313	C-47	10
5962-00-527-9226	C-19	4	5962-01-263-2878	C-50	3
5962-00-599-5695	C-50	6	5970-00-177-1548	C-2	45
5962-01-005-5529	C-49	46	5970-00-464-0465	C-53	43
5962-01-008-8781	C-35	45	5970-01-030-4263	C-31	12
5962-01-008-8781	C-50	5	5970-01-129-7630	C-53	26
5962-01-008-8781	C-52	12	5970-01-203-5932	C-9	27
5962-01-016-7260	C-33	27	5975-00-111-3208	C-20	11
5962-01-027-8600	C-50	4	5975-00-441-1610	C-49	53
5962-01-028-6967	C-32	12	5975-00-937-6691	C-10	33
5962-01-032-6842	C-37	12	5975-00-937-6691	C-11	37
5962-01-036-0355	C-35	47	5995-01-248-7407	C-11	35
5962-01-041-7282	C-35	38	5995-01-248-7461	C-21	78
5962-01-042-9794	C-37	11	5999-00-402-2545	C-2	49
5962-01-048-6860	C-9	32	5999-00-473-3551	C-20	7
5962-01-049-0349	C-19	5	5999-00-605-7936	C-31	5
5962-01-050-0921	C-36	15	5999-00-605-7936	C-32	2

NATIONAL STOCK NUMBERS

NATL STOCK NUM	FIGURE	ITEM	NATL STOCK NUM	FIGURE	ITEM
5999-00-605-7936	C-33	3			
5999-00-605-7936	C-34	5			
5999-00-605-7936	C-35	2			
5999-00-605-7936	C-36	3			
5999-00-605-7936	C-37	3			
5999-00-688-7700	C-22	5			
5999-01-028-4179	C-20	1			
5999-01-028-6070	C-31	4			
5999-01-028-6070	C-32	3			
5999-01-028-6070	C-33	2			
5999-01-028-6070	C-34	4			
5999-01-028-6070	C-35	3			
5999-01-028-6070	C-36	2			
5999-01-028-6070	C-37	2			
5999-01-042-7771	C-25	4			
5999-01-049-8327	C-53	27			
5999-01-051-3735	C-53	25			
5999-01-054-0583	C-21	73			
5999-01-068-9564	C-31	6			
5999-01-068-9564	C-32	4			
5999-01-068-9564	C-33	4			
5999-01-068-9564	C-34	6			
5999-01-068-9564	C-35	4			
5999-01-068-9564	C-36	4			
5999-01-068-9564	C-37	4			
6145-00-681-7849	C-27	3			
6145-00-681-7849	C-28	3			
6645-00-255-1371	C-30	2			

PART NUMBERS

PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
AD562SD BIN/883B	24355	C-52	16	CMR03E560JOCP	81349	C-24	10
AH-5451	17450	C-23	29	CMR03E620JOYP	81349	C-47	19
AH-5451	17540	C-24	24	CMR03E620JOCP	81349	C-24	10
AH0014D/883B	27014	C-35	45	CMR03E620JOYP	81349	C-22	29
AH0014D/883B	27014	C-50	5	CMR03E680JOCP	81349	C-24	10
AH0014D/883B	27014	C-52	12	CMR03E750JOCP	81349	C-24	10
AH0015D/883B	27014	C-50	4	CMR03E750JOYP	81349	C-39	9
AP-1	06229	C-2	39	CMR03E820JOCP	81349	C-24	10
AP-2	06229	C-2	2	CMR03E820JOYP	81349	C-49	19
A145B2308LL	70318	C-21	87	CMR03F101JOYP	81349	C-41	7
A145B2308LL	70318	C-53	40	CMR03F101JOYP	81349	C-47	20
A1465-1	09084	C-15	19	CMR03F101JOCP	81349	C-24	10
A1465-3	09087	C-15	13	CMR03F101JOYP	81349	C-33	14
BSOS-440-14	99256	C-9	20	CMR03F101JOYP	81349	C-35	13
CA3028B	18714	C-41	51	CMR03F101JOYP	81349	C-49	20
CA3049T3	18714	C-41	50	CMR03F111JOYP	81349	C-23	5
CA3049T3	18714	C-47	9	CMR03F111JOCP	81349	C-24	10
CA3140S3	02734	C-10	3	CMR03F121JOCP	81349	C-24	10
CCR05CG112JR	81349	C-47	25	CMR03F121JOYP	81349	C-49	21
CCR05CG301JR	81349	C-47	21	CMR03F131JOAP	81349	C-24	10
CCR05CG561JR	81349	C-47	22	CMR03F151JOYP	81349	C-31	10
CCR05CG621JR	81349	C-47	23	CMR03F151JOAP	81349	C-24	10
CCR09CG620FP	81349	C-45	8	CMR03F151JOYP	81349	C-43	5
CCR09CG680FP	81349	C-45	7	CMR03F161JOAP	81349	C-24	10
CCR09CG750FP	81349	C-45	6	CMR03F181JOAP	81349	C-24	10
CD4052BD/3	18714	C-17	4	CMR03F271JOYP	81349	C-33	15
CD4052BF/3	02735	C-18	4	CMR03F910JOCP	81349	C-24	10
CK60AW102M	81349	C-17	11	CMR05FZ71JPDR	81349	C-11	21
CK60AW102M	81349	C-18	11	CMR05F121JODP	81349	C-24	7
CLN-3/8	51705	C-53	24	CMR05F161JODP	81349	C-24	6
CLN-5/6	51705	C-53	18	CMR05F221JODP	81349	C-24	7
CLS-440-1	99256	C-15	5	CMR05F241JODP	81349	C-39	10
CLS-440-3	46384	C-20	8	CMR05F271JODP	81349	C-24	8
CMR03C100D0CP	81349	C-24	9	CMR05F271JODP	81349	C-43	7
CMR03C150D0AP	81349	C-43	8	CMR05F331JODP	81349	C-24	7
CMR03C150D0CP	81349	C-24	9	CMR05F391JODP	81349	C-45	9
CMR03C5R0D0CP	81349	C-24	9	CMR05R0D0CP	81349	C-24	11
CMR03C7R0D0CP	81349	C-24	9	CMR06F102JODP	81349	C-41	10
CMR03C8R0D0CP	81349	C-39	7	CMR06F102JPDP	81349	C-11	13
CMR03E220D0AP	81349	C-43	9	CMR06F102JODP	81349	C-24	7
CMR03E270JOYP	81349	C-41	6	CMR06F122JODP	81349	C-24	7
CMR03E300JOYP	81349	C-31	9	CMR06F471JODP	81349	C-41	8
CMR03E300JOYP	81349	C-39	8	CMR06F471JODP	81349	C-45	10
CMR03E330JOYP	81349	C-39	12	CMR06F471JODP	81349	C-24	7
CMR03E390JOYP	81349	C-43	4	CMR06F471JODP	81349	C-43	6
CMR03E390JOYP	81349	C-49	18	CMR06F561JODP	81349	C-24	7
CMR03E430JOCP	81349	C-24	10	CMR06F681JODP	81349	C-39	11
CMR03E470JOCP	81349	C-24	10	CMR06F821JODP	81349	C-24	7
CMR03E510JOYP	81349	C-47	18	CR-19A/U2-000000	81349	C-43	36
CMR03E510JOCP	81349	C-24	10	CR-19A/U4096KHZ	81349	C-31	15

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PART NUMBER	FSCM	FIGURE	ITEM
CR-79/U11.250000	81349	C-45	36
CR-79/U13.750000	81349	C-45	35
CR-79/U16.250000	81349	C-45	34
CR-79/U16-500000	81349	C-45	30
CR-79/U17-837500	81349	C-45	31
CR-79/U18.750000	81349	C-45	29
CR-79/U20-337500	81349	C-45	32
CR-79/U8.750000M	81349	C-45	33
CR112U19300KHZ	81349	C-39	63
CR60AU16000KHZ	81349	C-49	43
CT8	01240	C-2	40
C5074128-3	57958	C-21	86
C5135457-1	57958	C-21	21
C5135460-1	57958	C-36	1
C5142078	57958	C-1	7
C5142080	57958	C-1	1
C5142081	57958	C-1	8
C5142082	57958	C-2	14
C5142083	57938	C-2	13
C5142084	57958	C-2	15
C5142085	57958	C-2	38
C5142085-1	57958	C-3	11
C5142085-2	57958	C-3	4
C5142085-3	57958	C-3	6
C5142085-4	57958	C-3	2
C5142085-5	57958	C-3	8
C5142087	57958	C-2	18
C5142088	57958	C-2	21
C5142089	57958	C-2	22
C5142090	57958	C-2	7
C5142091	57958	C-8	7
C5142092	57958	C-13	9
C5142093	57958	C-4	13
C5142094-1	57958	C-13	8
C5142096	57958	C-2	8
C5142097	57958	C-2	26
C5142098	57958	C-20	9
C5142099	57958	C-20	26
C5142100	57958	C-20	2
C5142101	57958	C-20	18
C5142102	57958	C-20	27
C5142103-1	57958	C-17	1
C5142103-2	57958	C-18	1
C5142105	57958	C-19	1
C5142107	57958	C-7	1
C5142107-1	57958	C-7	2
C5142108	57958	C-6	15
C5142108-1	57958	C-6	14
C5142109-1	57958	C-6	1
C5142111	57958	C-4	8
C5142111-1	57958	C-4	9
C5142112	57958	C-13	13
C5142112-1	57958	C-13	14
C5142115	57958	C-2	19
C5142116	57958	C-2	34
C5142117	57958	C-2	30
C5142118	57958	C-5	2
C5142118-1	57958	C-5	3
C5142120-1	57958	C-13	7
C5142121	57958	C-1	11
C5142122	57958	C-2	41
C5142123	57958	C-2	12
C5142125	57958	C-2	11
C5142131	57958	C-16	1
C5142132	57958	C-16	4
C5142134	57958	C-10	0
C5142134-1	57958	C-10	1
C5142137	57958	C-12	1
C5142137-1	57958	C-12	2
C5142138	57958	C-2	25
C5142139-1	57958	C-8	12
C5142141	57958	C-9	6
C5142143	57958	C-11	0
C5142143-1	57958	C-11	1
C5142144	57958	C-9	8
C5142145	57958	C-8	8
C5142146	57958	C-4	4
C5142146-1	57958	C-4	5
C5142147	57958	C-4	28
C5142147-1	57958	C-4	29
C5142148-1	57958	C-8	5
C5142149-1	57958	C-8	6
C5142151	57958	C-9	14
C5142151-1	57958	C-9	13
C5142152	57958	C-9	25
C5142153	57958	C-9	26
C5142153-1	57958	C-9	24
C5142155	57958	C-15	2
C5142155-1	57958	C-15	3
C5142156	57958	C-15	8
C5142159	57958	C-15	7
C5142160	57958	C-14	0
C5142160-1	57958	C-14	1
C5142164	57958	C-14	19
C5142165	57958	C-14	20
C5142166	57958	C-8	4
C5142167	57958	C-15	20
C5142168	57958	C-15	12
C5142180	57958	C-11	35
C5142181	57958	C-8	3

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PART NUMBER	FSCM	FIGURE	ITEM
C5142181	57958	C-15	4
C5142181	57958	C-16	2
C5142184	57958	C-19	42
C5142185	57958	C-19	43
C5142186	57958	C-19	44
C5142187	57958	C-19	45
C5142188	57958	C-10	32
C5142190	57958	C-2	32
C5142190	57958	C-2	36
C5142193	57958	C-2	33
C5142194	57958	C-2	31
C5142195	57958	C-2	1A
C5142196	57958	C-2	1B
C5142197	57958	C-2	50
C5142198	57958	C-2	51
C5142199	57958	C-2	37
C5142200	57958	C-2	1C
D-140	95987	C-53	19
D-791806	30885	C-21	28
DAC100AC25/883	06665	C-35	40
DAC100BCQ7	06665	C-52	11
DA20961	71468	C-53	4
DA51220-1	71468	C-48	13
DC20963	71468	C-53	12
DC51222-1	71468	C-51	3
DE44994	71468	C-53	46
DE51224-1	71468	C-22	11
DE51224-1	71468	C-38	3
DE51224-1	71468	C-40	2
DE51224-1	71468	C-42	6
DE51224-1	71468	C-44	6
DE51224-1	71468	C-46	3
DS1742C	18518	C-24	22
DS1750CBURNEDIN	28815	C-23	7
D14175GH	24972	C-16	5
D53018	71468	C-53	5
FE-440	46384	C-21	27
FE-440	46384	C-42	3
FE-832	46384	C-20	13
FE-832	46384	C-21	38
FHN20G	75915	C-2	46
FHS-440-6	46384	C-53	29
FHS-632-6	99256	C-9	18
HA1-2420-8	34371	C-35	47
HDH-4	94867	C-21	40
HM1-7611-8	34371	C-33	27
HV5FS	59635	C-10	6
HV5FS	59635	C-11	10
I/O-100-00000	31413	C-25	1
JANTX 1N2802B	81349	C-7	20

PART NUMBER	FSCM	FIGURE	ITEM
JANTX 1N4100	81349	C-41	53
JANTX 1N4104	81349	C-49	11
JANTX 1N4104	81349	C-50	15
JANTX 1N4106	81349	C-47	29
JANTX 1N4148	81340	C-33	17
JANTX 1N4148	81349	C-34	13
JANTX 1N4148	81349	C-35	37
JANTX 1N4148	81349	C-43	40
JANTX 1N4148	81349	C-47	28
JANTX 1N4148	81349	C-49	10
JANTX 1N4148	81349	C-50	13
JANTX 1N4148	81349	C-52	8
JANTX 1N4454-1	81349	C-11	7
JANTX 1N4454-1	81349	C-17	8
JANTX 1N4454-1	81349	C-18	8
JANTX1N4454-1	81349	C-19	12
JANTX 1N4622	81349	C-34	12
JANTX 1N4625	81349	C-24	21
JANTX 1N4625	81349	C-35	35
JANTX 1N4625A	81349	C-11	8
JANTX 1N4626	81349	C-35	36
JANTX 1N4626	81349	C-41	54
JANTX 1N4938	81349	C-14	24
JANTX 1N4983	81349	C-19	14
JANTX 1N5617	81349	C-10	7
JANTX 1N5617	81349	C-11	6
JANTX 1N5619	81349	C-10	5
JANTX 1N5619	81349	C-11	9
JANTX 1N5711	81349	C-41	11
JANTX 1N5711	81349	C-43	39
JANTX 1N5711	81349	C-45	40
JANTX 1N645-1	81349	C-19	15
JANTX 1N747A-1	81349	C-19	18
JANTX 1N748A	81349	C-50	14
JANTX 1N751A-1	81349	C-11	11
JANTX 1N751A-1	81349	C-19	13
JANTX 1N753A-1	81349	C-19	19
JANTX 1N755A1	81349	C-19	17
JANTX 1N757A-1	81349	C-19	20
JANTX 1N759A	81349	C-50	16
JANTX 1N829	81349	C-52	9
JANTX 1N963B-1	81349	C-19	16
JANTX 1N965B	81349	C-50	17
JANTX 1N985B	81349	C-14	23
JANTX 2N2219A	81349	C-11	4
JANTX 2N2219A	81349	C-17	6
JANTX 2N2219A	81349	C-18	6
JANTX 2N2222A	81349	C-14	26
JANTX 2N2222A	81349	C-34	33
JANTX 2N2222A	81349	C-39	22

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PART NUMBER	FSCM	FIGURE	ITEM
JANTX2N2222A	81349	C-41	18
JANTX2N2222A	81349	C-43	42
JANTX2N2222A	81349	C-47	40
JANTX2N2369A	81349	C-49	2
JANTX2N2905A	81349	C-47	38
JANTX2N2907A	81349	C-24	48
JANTX2N2907A	81349	C-31	27
JANTX2N2907A	81349	C-39	21
JANTX2N2907A	81349	C-43	44
JANTX2N2907A	81349	C-45	41
JANTX2N2907A	81349	C-47	39
JANTX2N3251A	81349	C-31	29
JANTX2N3251A	81349	C-41	19
JANTX2N3251A	81349	C-43	43
JANTX2N3251A	81349	C-49	3
JANTX2N3421	81349	C-11	5
JANTX2N3440	81349	C-17	7
JANTX2N3440	81349	C-18	7
JANTX2N3440	81349	C-19	11
JANTX2N3500	81349	C-19	9
JANTX2N3637	81349	C-14	27
JANTX2N3637	81349	C-19	10
JANTX2N3792	81349	C-7	12
JANTX2N4856	81349	C-49	4
JANTX2N6211	81349	C-4	17
JANTX2N918	81349	C-31	28
JANTX2N918	81349	C-39	24
JANTX2N918	81349	C-41	17
JANTX2N918	81349	C-43	45
JMC8052	91293	C-39	13
JMC8052	91293	C-47	26
LAC-440-2	46384	C-3	9
LCBS-4R	06915	C-15	6
LH0002H/883B	27014	C-33	26
LH0002H/883B	81349	C-34	14
LH0002H/883B	27014	C-47	12
LH0002H/883B	27014	C-52	13
LH002H/883B	27014	C-50	9
LH0070-1H/883B	27014	C-52	17
LH107H/883B	34335	C-52	15
LM107H/883C	18324	C-50	3
LM110H/883C	27014	C-17	5
LM110H/883C	27014	C-18	5
LM110H/883C	27014	C-19	7
LM111H/883B	27014	C-52	14
LM111J/883C	27014	C-35	38
LM117K/883B	27014	C-9	32
MIL-H-87111/01H1	81349	C-17	38
MIL-M-38507C/022	81349	C-14	28
MIL-M-38527/8A-0	81349	C-9	33
MIL-M-38527/84-023P	81349	C-4	18
MIL-M-38527/84-023P	81349	C-7	11
MIL-M-38527C/022	81349	C-10	34
MIL-M-38527C/022	81349	C-17	37
MIL-M-38527C/022	81349	C-18	38
MIL-M-38527C/022	81349	C-19	46
MIL-M-38527C/031	81349	C-14	29
MIL-M-87111/01H1	81349	C-18	39
MIL-N-38527C/022	81349	C-11	40
MIL-N-45938/7A-2	81349	C-3	5
MIL-N-45938/7A-2	81349	C-4	3
MIL-N-45938/7A-2	81349	C-9	12
MIL-N-45938/7A-4	81349	C-2	52
MIL-N-45938/7A-4	81349	C-3	1
MIL-N-45938/7A-4	81349	C-4	7
MIL-N-45938/7A-4	81349	C-5	8
MIL-N-45938/7A-4	81349	C-6	8
MIL-N-45938/7A-4	81349	C-7	19
MIL-N-45938/7A-4		C-12	5
MIL-N-45938/7A-4	81349	C-13	20
MIL-N-45938/7A-6	81349	C-3	3
MJ10009	04713	C-9	28
MK1301-04	15653	C-21	10
MS15795-802	96906	C-21	33
MS15795-803	96906	C-1	4
MS15795-803	96906	C-2	29
MS15795-803	96906	C-4	20
MS15795-803	96906	C-5	4
MS15795-803	96906	C-6	13
MS15795-803	96906	C-7	15
MS15795-803	96906	C-8	2
MS15795-803	96906	C-8	9
MS15795-803	96906	C-13	5
MS15795-803	96906	C-15	15
MS15795-803	96906	C-21	18
MS15795-803	96906	C-39	68
MS15795-803	96906	C-49	55
MS15795-803	96906	C-53	7
MS15795-804	96906	C-53	36
MS15795-805	96906	C-2	3
MS15795-805	96906	C-4	14
MS15795-805	96906	C-6	4
MS15795-805	96906	C-7	5
MS15795-805	96906	C-8	13
MS15795-805	96906	C-9	2
MS15795-805	96906	C-13	3
MS15795-805	96906	C-15	9
MS15795-807	96906	C-20	16
MS15795-813	96906	C-5	7
MS1608-2A	96906	C-12	3

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PART NUMBER	FSCM	FIGURE	ITEM
MS16108-3A	96906	C-12	4
MS16535-76	96906	C-45	38
MS16995-27	96906	C-2	9
MS17322-10	96906	C-30	2
MS18212-30	96906	C-53	42
MS18212-41	96906	C-23	30
MS18212-41	96906	C-24	49
MS20426AD2-3	96906	C-21	69
MS20426AD2-4	96906	C-21	11
MS20426AD2-5	96906	C-21	31
MS20426AD3-12	96906	C-3	7
MS20426AD3-4	96906	C-21	4
MS20426AD4-6	96906	C-21	6
MS20426AD5-9	96906	C-21	14
MS20470AD2-2	96906	C-21	74
MS20470AD2-3	96906	C-39	65
MS20470AD2-5	96906	C-31	17
MS20470AD2-5	96906	C-32	6
MS20470AD2-5	96906	C-33	6
MS20470AD2-5	96906	C-34	3
MS20470AD2-5	96906	C-35	6
MS20470AD2-5	96906	C-36	6
MS20470AD2-5	96906	C-37	6
MS20470AD3-3	96906	C-43	38
MS21266-2	96906	C-4	10
MS21266-2	96906	C-9	31
MS21266N	96906	C-53	13
MS24693-C1	96906	C-21	7
MS24693-C1	96906	C-51	10
MS24693-C3	96906	C-21	36
MS24693-C3	96906	C-53	8
MS24693-C4	96906	C-21	84
MS24693-C48	96906	C-21	90
MS24693-C49	96906	C-20	4
MS24693-24	96906	C-15	11
MS24693-25	96906	C-2	16
MS24693-29	96906	C-1	9
MS24693-3	96906	C-9	19
MS24693-4	96906	C-1	6
MS24693-4	96906	C-2	35
MS24693C14	96906	C-1	5
MS27484E14F18S	96906	C-26	1
MS27508E12F35S	96906	C-25	2
MS27508E14F18P	96906	C-26	2
MS27508E14F18P	96906	C-53	22
MS27508E14F35P	96906	C-20	6
MS27508E14F35S	96906	C-25	3
MS27508E16F	96906	C-2	48
MS27508E16F8P	96906	C-30	1
MS27716-26	96906	C-13	18

PART NUMBER	FSCM	FIGURE	ITEM
MS33538-134	96906	C-22	21
MS33538-69	96906	C-22	22
MS3367-5-9	96906	C-20	11
MS3368-5-9E	96906	C-53	39
MS3420-6A	96906	C-53	10
MS3420-8A	96906	C-53	11
MS35333-69	96906	C-17	40
MS35333-69	81349	C-18	41
MS35333-69	96906	C-40	12
MS35333-69	96906	C-42	18
MS35333-69	96906	C-44	15
MS35333-69	96906	C-46	16
MS35333-69	96906	C-48	6
MS35333-69	96906	C-51	13
MS35333-70	96906	C-1	3
MS35333-70	96906	C-2	28
MS35333-70	96906	C-4	26
MS35333-70	96906	C-5	5
MS35333-70	96906	C-6	12
MS35333-70	96906	C-7	16
MS35333-70	96906	C-8	10
MS35333-70	96906	C-13	2
MS35333-70	96906	C-15	16
MS35333-71	96906	C-2	4
MS35333-71	96906	C-4	12
MS35333-71	96906	C-6	3
MS35333-71	96906	C-7	6
MS35333-71	96906	C-8	14
MS35333-71	96906	C-9	3
MS35333-71	96906	C-15	10
MS35333-74	96906	C-13	16
MS35333-78	96906	C-2	43
MS35335-57	96906	C-53	38
MS35338-134	96906	C-31	30
MS35338-134	96906	C-38	16
MS35338-134	96906	C-40	13
MS35338-134	96906	C-42	19
MS35338-134	96906	C-44	14
MS35338-134	96906	C-46	15
MS35338-134	96906	C-48	5
MS35338-134	96906	C-51	14
MS35338-135	96906	C-21	17
MS35338-135	96906	C-49	56
MS35338-135	96906	C-53	20
MS35338-69	96906	C-38	15
MS35649-224	96906	C-31	31
MS35649-2254	96906	C-13	17
MS35649-244	96906	C-1	2
MS35649-244	96906	C-2	24
MS35649-244	96906	C-4	27

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
MS35649-244	96906	C-15	17	MS51957-4	96906	C-40	10
MS35649-264	96906	C-2	1	MS51957-4	96906	C-42	16
MS35649-264	96906	C-4	11	MS51957-4	96906	C-44	11
MS35649-264	96906	C-6	2	MS51957-4	96906	C-46	12
MS35649-264	96906	C-7	7	MS51957-4	96906	C-48	2
MS35649-264	96906	C-8	15	MS51957-4	96906	C-51	11
MS35649-264	96906	C-9	4	MS51957-44	96906	C-20	17
MS51858-3	96906	C-53	28	MS51957-44	96906	C-21	39
MS51957-11	96906	C-21	85	MS51959-3	96906	C-20	19
MS51957-12	96906	C-1	10	MS77068-1	96906	C-20	5
MS51957-123	96906	C-4	16	MS77068-1	96906	C-30	3
MS51957-123	96906	C-9	29	MS77068-2	96906	C-2	23
MS51957-13	96906	C-5	6	MS91528-0N1	96906	C-20	24
MS51957-13	96906	C-6	11	M1001-00844-AA	31413	C-31	2
MS51957-13	96906	C-7	17	M1001-00844-BA	31413	C-32	5
MS51957-13	96906	C-8	1	M1001-00844-CA	31413	C-33	5
MS51957-13	96906	C-8	11	M1001-00844-DA	28815	C-34	2
MS51957-13	96906	C-13	4	M1001-00844-EA	31413	C-35	5
MS51957-14	96906	C-21	16	M1001-00844-GA	81349	C-37	5
MS51957-14	96906	C-49	54	M1001-00844FH	31413	C-36	5
MS51957-15	96906	C-2	27	M17/84-RG 223	81349	C-27	3
MS51957-15	96906	C-15	21	M17/84-RG223	81349	C-28	3
MS51957-15	96906	C-22	14	M24308/2-1	81349	C-53	3
MS51957-15	96906	C-53	6	M24308/2-2	81349	C-53	2
MS51957-16	96906	C-21	55	M24308/2-4	81349	C-53	9
MS51957-17	96906	C-4	19	M24308/4-1	81349	C-22	15
MS51957-18	96906	C-53	44	M24308/4-1	81349	C-38	10
MS51957-26	96906	C-13	1	M24308/4-1	81349	C-40	8
MS51957-27	96906	C-2	17	M24308/4-1	81349	C-42	13
MS51957-27	96906	C-4	15	M24308/4-1	81349	C-44	8
MS51957-27	96906	C-6	6	M24308/4-1	81349	C-46	6
MS51957-27	96906	C-13	6	M24308/4-2	81349	C-48	14
MS51957-28	96906	C-2	10	M24308/4-4	81349	C-51	6
MS51957-28	96906	C-4	1	M38510-30001BCX	81349	C-36	12
MS51957-28	96906	C-7	18	M38510-30003BCX	81349	C-36	13
MS51957-29	96906	C-2	5	M38510-30005BCX	81349	C-36	14
MS51957-29	96906	C-4	23	M38510-30106BEX	81349	C-36	17
MS51957-29	96906	C-6	7	M38510-30605BCX	81349	C-36	16
MS51957-29	96906	C-7	14	M38510-30903BEX	81349	C-36	15
MS51957-3	96906	C-17	39	M38510-30903BEX	81349	C-37	13
MS51957-3	81349	C-18	40	M38510-31502BCX	81349	C-49	48
MS51957-3	96906	C-22	32	M38510-31508BEX	81349	C-36	18
MS51957-3	96906	C-38	12	M38510/00102BCB	81349	C-49	49
MS51957-3	96906	C-42	15	M38510/00104BCB	81349	C-43	47
MS51957-3	96906	C-48	3	M38510/00104BCB	04713	C-47	5
MS51957-30	96906	C-2	20	M38510/00104BCB	81349	C-49	50
MS51957-30	96906	C-7	13	M38510/00105BCB	81349	C-45	43
MS51957-31	96906	C-9	30	M38510/00201BCB	81349	C-49	47
MS51957-4	96906	C-22	18	M38510/00204BEB	81349	C-49	45
MS51957-4	96906	C-38	13	M38510/00801BCB	81349	C-45	44

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
M38510/00903BCB	81349	C-35	46	M39003/01-2523	81349	C-11	14
M38510/00903BCB	81349	C-37	14	M39003/01-2523	81349	C-24	13
M38510/01004BEB	81349	C-24	25	M39003/01-2523	81349	C-33	11
M38510/01201BCB	81349	C-49	44	M39003/01-2523	81349	C-35	10
M38510/01202BCB	81349	C-49	46	M39003/01-2523	81349	C-49	13
M38510/01307BCB	81349	C-47	11	M39003/01-2526	81349	C-24	12
M38510/01309BEX	68324	C-35	41	M39003/01-2526	81349	C-31	7
M38510/02001BCB	81349	C-32	14	M39003/01-2526	81349	C-32	7
M38510/02003BCB	81349	C-34	20	M39003/01-2526	81349	C-33	9
M38510/02003BCB	81349	C-35	42	M39003/01-2526	81349	C-34	8
M38510/02004BCB	81349	C-33	23	M39003/01-2526	81349	C-37	7
M38510/02004BCB	81349	C-50	8	M39003/01-2526	81349	C-39	6
M38510/02005BCB	81349	C-32	15	M39003/01-2526	81349	C-49	14
M38510/02005BCB	81349	C-33	24	M39003/01-2526	81349	C-52	3
M38510/02005BCB	81349	C-34	21	M39003/01-2529	81349	C-11	12
M38510/02005BCB	81349	C-35	43	M39003/01-2530	81349	C-14	16
M38510/02005BCB	81349	C-47	8	M39003/01-2596	81349	C-10	14
M38510/02005BCB	81349	C-52	10	M39003/01-2596	81349	C-11	15
M38510/02105BCB	81349	C-34	19	M39003/01-2608	81349	C-33	10
M38510/02105BCX	81349	C-33	21	M39003/01-2608	81349	C-34	7
M38510/02501BCX	81349	C-43	46	M39003/01-2608	81349	C-35	11
M38510/02701BCB	81349	C-19	4	M39003/01-2608	81349	C-39	5
M38510/02701BCB	81349	C-33	22	M39003/01-2608	81349	C-41	3
M38510/02701BCB	81349	C-37	16	M39003/01-2608	81349	C-43	10
M38510/06102BEB	04713	C-47	4	M39003/01-2608	81349	C-47	14
M38510/07003BCB	18324	C-47	6	M39003/01-2608	81349	C-49	12
M38510/10101BGB	81349	C-50	6	M39003/01-2608	81349	C-50	23
M38510/10101BGC	81349	C-34	15	M39003/01-2608	81349	C-52	4
M38510/10101BGC	68324	C-35	39	M39003/01-2772	81349	C-10	15
M38510/10101BGC	81349	C-41	52	M39010/02-A1R0KP	81349	C-49	7
M38510/10101BGC	81349	C-47	7	M39010/02-A1R0KP	81349	C-32	9
M38510/10901BGC	81349	C-19	5	M39010/02-A1R0KP	81349	C-36	22
M38510/10901BGX	81349	C-14	25	M39010/02-A1R0KP	81349	C-37	10
M38510/10901BGX	81349	C-33	19	M39010/02-A1R0KP	81349	C-45	39
M38510/30009BCX	81349	C-34	17	M39010/02-A2R2KP	81349	C-49	6
M38510/30102BCX	81349	C-33	41	M39010/02A1R0KP	81349	C-35	34
M38510/30302BCX	81349	C-33	25	M39010/02A1R0KP	81349	C-41	12
M38510/30703BEX	81349	C-45	42	M39010/02A1R0KP	81349	C-50	12
M38510/30703BEX	01295	C-50	7	M39010/02A1R0KR	81349	C-33	18
M38510/31502BCX	81349	C-19	6	M39010/02A3R9KP	81349	C-43	32
M38510/32401BRX	81349	C-36	19	M39010/02A5R6KP	81349	C-41	13
M38510/32403BRX	81349	C-36	20	M39010/02A6R8KP	81349	C-41	14
M39003-01-2511	81349	C-36	10	M39010/03-A102KP	81349	C-49	9
M39003/01-2495	81349	C-19	27	M39010/03-A103KR	81349	C-50	11
M39003/01-2499	81349	C-50	25	M39010/03-A104KR	81349	C-50	10
M39003/01-2511	81349	C-35	12	M39010/03-A181KP	81349	C-47	32
M39003/01-2511	81349	C-45	5	M39010/03-A470KP	81349	C-31	14
M39003/01-2511	81349	C-47	13	M39010/03-A563KP	81349	C-49	8
M39003/01-2511	81349	C-50	24	M39010/03A150KP	81349	C-39	18
M39003/01-2523	81349	C-9	10	M39010/03A181KP	81349	C-43	33

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PART NUMBER	FSCM	FIGURE	ITEM
M39010/03A220KP	81349	C-41	15
M39010/03A220KP	81349	C-45	21
M39010/2-A1R0KP	81349	C-31	13
M39010/2-A1R0KP	81349	C-47	33
M39010/2-A1R0KP	81349	C-52	7
M39010/2-A1R2KP	81349	C-23	18
M39010/2-A100KP	81349	C-23	11
M39010/2-A3R3KP	81349	C-23	31
M39010/3-A390KP	81349	C-23	9
M39010/3-A470KP	81349	C-47	31
M39012/26-0101	81349	C-27	2
M39012/28-0005	81349	C-2	42
M39012/29-0011	81349	C-27	1
M39012/29-0011	81349	C-28	2
M39012/55-3009	81349	C-28	1
M39012/60-3001	81349	C-22	23
M39012/60-3001	81349	C-38	6
M39012/60-3001	81349	C-40	4
M39012/60-3001	81349	C-42	9
M39012/60-3001	81349	C-44	16
M39012/60-3001	81349	C-48	8
M39012/60-3001	81349	C-51	5
M39014-02-1258	81349	C-34	10
M39014-02-1270	81349	C-34	9
M39014/01-1271	81349	C-14	17
M39014/01-1277	81349	C-47	17
M39014/01-1278	81349	C-14	22
M39014/01-1293	81349	C-19	22
M39014/01-1299	81349	C-11	18
M39014/01-1311	81349	C-19	21
M39014/01-1317	81349	C-17	9
M39014/01-1317	81349	C-18	9
M39014/01-1317	81349	C-19	23
M39014/01-1317	81349	C-19	28
M39014/01-1483	81349	C-33	13
M39014/01-1486	81349	C-50	20
M39014/01-1495	81349	C-14	18
M39014/01-1495	81349	C-23	2
M39014/01-1495	81349	C-24	4
M39014/01-1495	81349	C-33	8
M39014/01-1495	81349	C-35	9
M39014/01-1495	81349	C-45	3
M39014/01-1495	81349	C-47	16
M39014/01-1495	81349	C-50	22
M39014/01-1513	81349	C-24	3
M39014/01-1513	81349	C-31	8
M39014/01-1535	81349	C-19	25
M39014/02-A1R0KP	81349	C-34	11
M39014/02-1250	81349	C-49	23
M39014/02-1252	81349	C-52	5
M39014/02-1258	81349	C-39	4
M39014/02-1258	81349	C-41	5
M39014/02-1258	81349	C-49	16
M39014/02-1260	81349	C-49	15
M39014/02-1261	81349	C-50	19
M39014/02-1270	81349	C-23	3
M39014/02-1270	81349	C-24	5
M39014/02-1270	81349	C-32	8
M39014/02-1270	81349	C-33	12
M39014/02-1270	81349	C-35	8
M39014/02-1270	81349	C-37	8
M39014/02-1270	81349	C-39	3
M39014/02-1270	81349	C-41	4
M39014/02-1270	81349	C-43	3
M39014/02-1270	81349	C-45	4
M39014/02-1270	81349	C-47	15
M39014/02-1270	81349	C-49	17
M39014/02-1270	81349	C-50	18
M39014/02-1270	81349	C-52	6
M39014/02-1298	81349	C-10	9
M39014/02-1298	81349	C-11	17
M39014/02-1310	81349	C-10	10
M39014/02-1310	81349	C-11	16
M39014/02-1310	81349	C-17	10
M39014/02-1310	81349	C-18	10
M39014/02-1310	81349	C-19	26
M39014/02-1411	81349	C-33	16
M39014/02-1411	81349	C-37	9
M39014/05-2219	81349	C-36	9
M39014/05-2291	81349	C-36	8
M39015/3-004XP	81349	C-35	32
M39015/3-004XP	81349	C-41	46
M39015/3-005XP	01606	C-52	36
M39015/3-006XP	01606	C-52	38
M39015/3-007XP	81349	C-35	33
M39015/3-007XP	01606	C-52	35
M39015/3-010XP	81349	C-33	40
M39015/3-010XP	81349	C-41	47
M39015/3-010XP	01606	C-52	37
M39018/01-0636	81349	C-6	10
M39018/01-0736	81349	C-7	4
M39018/01-1153M	81349	C-19	24
M39018/01-1168	81349	C-14	21
M39018/08-0114M	81349	C-10	11
M39022/02-1238	81349	C-15	14
M39022/02-1278	81349	C-17	12
M39022/02-1278	81349	C-18	12
M39029/1-16-20	81349	C-20	15
M39029/58-360	81349	C-20	7
M39029/58-364	81349	C-2	49

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
M6DH	14482	C-39	67	RBR56L63400FP	81349	C-52	27
M6DH	14482	C-47	30	RBR56L71501FP	81349	C-52	30
M83421/01-1316P	81349	C-50	26	RC 1-FNGRES1/16G	77969	C-22	24
NAS1189E02P4B	80205	C-22	13	RCR05G100JP	81349	C-23	22
NAS1189E02P5L	80205	C-20	25	RCR05G100JP	81349	C-24	27
NAS1189E04P4B	80205	C-38	11	RCR05G100JP	81349	C-24	40
NAS1189E04P4B	80205	C-40	9	RCR05G100JP	81349	C-39	25
NAS1189E04P4B	80205	C-44	5	RCR05G100JP	81349	C-49	27
NAS1189E04P4B	80205	C-46	11	RCR05G100JP	81349	C-52	18
NAS1189E04P4L	80205	C-48	10	RCR05G101JP	81349	C-34	26
NAS1189E04P43L	80205	C-42	14	RCR05G101JP	81349	C-39	32
NAS620C2	80205	C-22	20	RCR05G102JP	81349	C-23	24
NAS620C2	80205	C-31	32	RCR05G102JP	81349	C-39	40
NAS620C2	80205	C-38	14	RCR05G102JP	81349	C-47	41
NAS620C2	80205	C-40	11	RCR05G102JP	81349	C-49	31
NAS620C2	80205	C-42	17	RCR05G103JP	81349	C-23	26
NAS620C2	80205	C-44	13	RCR05G103JP	81349	C-24	33
NAS620C2	80205	C-46	14	RCR05G103JP	81349	C-24	41
NAS620C2	80205	C-48	4	RCR05G103JP	81349	C-31	23
NAS620C2	80205	C-51	12	RCR05G103JP	81349	C-34	24
NAS620C4	80205	C-22	30	RCR05G103JP	81349	C-49	37
NAS620C4	80205	C-38	18	RCR05G104JP	81349	C-34	27
NAS620C4	80205	C-40	15	RCR05G110JP	81349	C-24	36
NAS620C4	80205	C-42	10	RCR05G111JP	81349	C-24	26
NAS620C4	80205	C-44	18	RCR05G132JP	81349	C-24	28
NAS620C4	80205	C-46	17	RCR05G152JP	81349	C-31	21
NAS620C4	80205	C-48	17	RCR05G152JP	81349	C-39	49
NAS620C4	80205	C-51	16	RCR05G182JP	81349	C-39	41
NAS671C2	80205	C-22	19	RCR05G182JP	81349	C-49	40
NAS671C2	80205	C-38	17	RCR05G201JP	81349	C-39	33
NAS671C2	80205	C-40	14	RCR05G202JP	81349	C-23	25
NAS671C2	80205	C-42	20	RCR05G202JP	81349	C-39	40
NAS671C2	80205	C-44	12	RCR05G202JP	81349	C-39	42
NAS671C2	80205	C-46	13	RCR05G220JP	81349	C-39	26
NAS671C2	80205	C-48	7	RCR05G220JP	81349	C-49	25
NAS671C2	80205	C-51	15	RCR05G221JP	81349	C-31	20
NAS671C4	80205	C-21	35	RCR05G222JP	81349	C-24	34
NAS671C4	80205	C-39	69	RCR05G222JP	81349	C-39	50
NAS671C4	80205	C-49	57	RCR05G223JP	81349	C-39	47
NAS671C4	80205	C-53	21	RCR05G272JP	81349	C-49	33
NOT USED		C-20	10	RCR05G273JP	81349	C-34	28
NOT USED		C-21	12	RCR05G273JP	81349	C-35	26
NOT USED		C-53	23	RCR05G302JP	81349	C-24	37
RBR55L10000FP	01606	C-52	34	RCR05G302JP	81349	C-39	43
RBR56L12101FP	81349	C-52	28	RCR05G302JP	81349	C-49	32
RBR56L150R0FP	81349	C-52	31	RCR05G330JP	81349	C-39	27
RBR56L22600FP	81349	C-52	32	RCR05G330JP	81349	C-49	26
RBR56L25500FP	81349	C-52	26	RCR05G331JP	81349	C-24	31
RBR56L26701FP	81349	C-52	29	RCR05G331JP	81349	C-49	30
RBR56L63400FP	81349	C-50	31	RCR05G332JP	81349	C-31	22

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
RCR05G332JP	81349	C-39	44	RCR07G102JP	81349	C-35	17
RCR05G332JP	81349	C-49	34	RCR07G102JP	81349	C-37	17
RCR05G362JP	81349	C-31	18	RCR07G102JP	81349	C-41	34
RCR05G362JP	81349	C-34	31	RCR07G102JP	81349	C-43	15
RCR05G390JP	81349	C-39	28	RCR07G102JP	81349	C-45	19
RCR05G392JP	81349	C-39	40	RCR07G102JP	81349	C-47	56
RCR05G392JP	81349	C-39	45	RCR07G102JP	81349	C-50	36
RCR05G393JP	81349	C-34	25	RCR07G102JS	81349	C-10	31
RCR05G430JP	81349	C-39	29	RCR07G102JS	81349	C-11	24
RCR05G431JP	81349	C-24	35	RCR07G103JP	81349	C-41	41
RCR05G431JP	81349	C-39	34	RCR07G103JP	81349	C-43	17
RCR05G432JP	81349	C-34	32	RCR07G103JP	81349	C-47	62
RCR05G470JP	81349	C-39	30	RCR07G103JP	81349	C-50	44
RCR05G470JP	81349	C-49	28	RCR07G103JS	81349	C-11	28
RCR05G471JP	81349	C-34	29	RCR07G104JP	81349	C-33	35
RCR05G471JP	81349	C-39	35	RCR07G104JP	81349	C-43	27
RCR05G472JP	81349	C-32	10	RCR07G104JS	81349	C-11	41
RCR05G472JP	81349	C-34	30	RCR07G105JP	81349	C 52	22
RCR05G472JP	81349	C-39	46	RCR07G112JP	81349	C-23	21
RCR05G472JP	81349	C-49	24	RCR07G112JP	81349	C-45	18
RCR05G501JP	81349	C-39	40	RCR07G120JP	81349	C-39	52
RCR05G510JP	81349	C-23	23	RCR07G121JP	81349	C-31	26
RCR05G510JP	81349	C-24	32	RCR07G121JP	81349	C-43	21
RCR05G510JP	81349	C-39	31	RCR07G121JP	81349	C-47	49
RCR05G511JP	81349	C-39	36	RCR07G122JP	81349	C-45	28
RCR05G512JP	81349	C-49	35	RCR07G124JP	81349	C-33	33
RCR05G513JP	81349	C-35	26	RCR07G131JS	81349	C-11	23
RCR05G561JP	81349	C-39	37	RCR07G132JP	81349	C-50	37
RCR05G620JP	81349	C-24	39	RCR07G151JP	81349	C-39	51
RCR05G621JP	81349	C-24	30	RCR07G151JP	81349	C-41	55
RCR05G621JP	81349	C-39	38	RCR07G151JS	81349	C-11	29
RCR05G682JP	81349	C-24	29	RCR07G152JP	81349	C-35	18
RCR05G682JP	81349	C-31	19	RCR07G152JP	81349	C-43	16
RCR05G682JP	81349	C-49	36	RCR07G152JP	81349	C-45	27
RCR05G752JP	81349	C-24	38	RCR07G152JP	81349	C-50	38
RCR05G753JP	81349	C-35	26	RCR07G154JP	81349	C-33	36
RCR05G821JP	81349	C-39	39	RCR07G180JP	81349	C-39	52
RCR05G823JP	81349	C-39	48	RCR07G180JP	81349	C-45	17
RCR07G100JP	81349	C-33	28	RCR07G180JP	81349	C-47	43
RCR07G100JP	81349	C-39	52	RCR07G181JP	81349	C-31	25
RCR07G100JP	81349	C-41	20	RCR07G181JP	81349	C-43	20
RCR07G100JP	81349	C-47	42	RCR07G182JP	81349	C-47	57
RCR07G100JP	81349	C-52	19	RCR07G2R7JS	81349	C-11	22
RCR07G101JP	81349	C-35	15	RCR07G200JS	81349	C-11	27
RCR07G101JP	81349	C-39	51	RCR07G201JP	81349	C-41	24
RCR07G101JP	81349	C-41	23	RCR07G201JP	81349	C-43	24
RCR07G101JP	81349	C-47	48	RCR07G201JP	81349	C-49	29
RCR07G101JP	81349	C-50	32	RCR07G201JP	81349	C-50	33
RCR07G101JP	81349	C-52	20	RCR07G202JP	81349	C-35	19
RCR07G102JP	81349	C-33	38	RCR07G202JP	81349	C-41	35

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
RCR07G202JP	81349	C-50	39	RCR07G471JP	81349	C-39	54
RCR07G203JP	81349	C-41	42	RCR07G471JP	81349	C-43	25
RCR07G203JP	81349	C-47	63	RCR07G471JP	81349	C-47	52
RCR07G203JP	81349	C-50	45	RCR07G472JP	81349	C-33	37
RCR07G204JS	81349	C-10	29	RCR07G472JP	81349	C-35	22
RCR07G220JP	81349	C-41	21	RCR07G472JP	81349	C-41	39
RCR07G222JP	81349	C-39	56	RCR07G472JP	81349	C-52	21
RCR07G222JP	81349	C-41	36	RCR07G473JP	81349	C-33	34
RCR07G222JP	81349	C-43	22	RCR07G510JP	81349	C-35	14
RCR07G223JP	81349	C-33	32	RCR07G510JP	81349	C-39	51
RCR07G223JS	81349	C-11	34	RCR07G510JP	81349	C-45	13
RCR07G240JP	81349	C-39	52	RCR07G510JP	81349	C-47	45
RCR07G241JP	81349	C-41	25	RCR07G511JP	81349	C-41	27
RCR07G241JP	81349	C-43	26	RCR07G511JP	81349	C-50	35
RCR07G241JP	81349	C-47	50	RCR07G512JP	81349	C-35	23
RCR07G242JP	81349	C-35	20	RCR07G512JP	81349	C-41	40
RCR07G242JP	81349	C-50	40	RCR07G512JP	81349	C-47	60
RCR07G271JP	81349	C-39	57	RCR07G513JP	81349	C-35	25
RCR07G271JP	81349	C-50	34	RCR07G513JP	81349	C-43	30
RCR07G272JP	81349	C-41	37	RCR07G561JP	81349	C-41	28
RCR07G273JP	81349	C-50	46	RCR07G561JP	81349	C-47	53
RCR07G301JP	81349	C-31	24	RCR07G561JP	81349	C-50	48
RCR07G301JP	81349	C-39	53	RCR07G620JP	81349	C-47	46
RCR07G301JP	81349	C-43	19	RCR07G621JP	81349	C-41	29
RCR07G301JP	81349	C-47	51	RCR07G621JS	81349	C-10	20
RCR07G302JP	81349	C-35	21	RCR07G680JP	81349	C-47	47
RCR07G302JP	81349	C-43	29	RCR07G681JP	81349	C-41	30
RCR07G302JP	81349	C-45	16	RCR07G681JP	81349	C-47	66
RCR07G302JP	81349	C-47	58	RCR07G682JP	81349	C-33	30
RCR07G303JP	81349	C-43	23	RCR07G682JP	81349	C-43	14
RCR07G331JP	81349	C-35	16	RCR07G682JP	81349	C-45	15
RCR07G332JP	81349	C-43	18	RCR07G682JP	81349	C-47	61
RCR07G332JP	81349	C-50	41	RCR07G682JP	81349	C-50	42
RCR07G333JS	81349	C-10	18	RCR07G682JS	81349	C-10	26
RCR07G361JP	81349	C-39	55	RCR07G750JP	81349	C-39	51
RCR07G361JP	81349	C-41	26	RCR07G750JP	81349	C-43	28
RCR07G362JP	81349	C-43	13	RCR07G751JP	81349	C-41	31
RCR07G362JP	81349	C-45	14	RCR07G751JP	81349	C-47	54
RCR07G362JS	81349	C-10	19	RCR07G752JP	81349	C-50	43
RCR07G390JP	81349	C-34	23	RCR07G821JP	81349	C-41	32
RCR07G390JP	81349	C-41	22	RCR07G822JP	81349	C-35	24
RCR07G390JP	81349	C-47	44	RCR07G822JP	81349	C-43	12
RCR07G392JP	81349	C-41	38	RCR07G823JP	81349	C-33	31
RCR07G392JP	81349	C-43	31	RCR07G911JP	81349	C-41	33
RCR07G392JP	81349	C-47	59	RCR07G911JP	81349	C-47	55
RCR07G432JP	81349	C-45	12	RCR20G100JR	81349	C-14	3
RCR07G433JP	81349	C-50	47	RCR20G100JR	81349	C-17	21
RCR07G471JP	81349	C-32	11	RCR20G100JR	81349	C-18	21
RCR07G471JP	81349	C-33	29	RCR20G101JP	81349	C-33	39
RCR07G471JP	81349	C-37	18	RCR20G101JP	81349	C-52	23

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
RCR20G101JR	81349	C-4	24	RCR20G133JR	81349	C-19	45
RCR20G101JR	81349	C-7	8	RCR20G134JR	81349	C-10	32
RCR20G101JR	81349	C-8	17	RCR20G134JR	81349	C-19	43
RCR20G101JR	81349	C-14	7	RCR20G134JR	81349	C-19	44
RCR20G101JR	81349	C-17	15	RCR20G134JR	81349	C-19	45
RCR20G101JR	81349	C-18	15	RCR20G152JR	81349	C-17	27
RCR20G102JR	81349	C-8	18	RCR20G152JR	81349	C-18	28
RCR20G102JR	81349	C-19	31	RCR20G152JR	81349	C-19	42
RCR20G103JR	81349	C-10	32	RCR20G153JR	81349	C-10	32
RCR20G103JR	81349	C-14	12	RCR20G153JR	81349	C-19	43
RCR20G103JR	81349	C-19	36	RCR20G153JR	81349	C-19	44
RCR20G103JR	81349	C-19	43	RCR20G153JR	81349	C-19	45
RCR20G103JR	81349	C-19	44	RCR20G154JR	81349	C-10	32
RCR20G103JR	81349	C-19	45	RCR20G154JR	81349	C-19	43
RCR20G104JR	81349	C-10	32	RCR20G154JR	81349	C-19	44
RCR20G104JR	81349	C-14	9	RCR20G154JR	81349	C-19	45
RCR20G104JR	81349	C-17	17	RCR20G162JR	81349	C-19	42
RCR20G104JR	81349	C-18	17	RCR20G163JR	81349	C-10	32
RCR20G104JR	81349	C-19	43	RCR20G163JR	81349	C-19	43
RCR20G104JR	81349	C-19	44	RCR20G163JR	81349	C-19	44
RCR20G104JR	81349	C-19	45	RCR20G163JR	81349	C-19	45
RCR20G104JR	81349	C-19	45	RCR20G164JR	81349	C-10	32
RCR20G104JR	81349	C-19	55	RCR20G164JR	81349	C-19	43
RCR20G104JS	81349	C-10	21	RCR20G164JR	81349	C-19	44
RCR20G105JR	81349	C-14	11	RCR20G164JR	81349	C-19	45
RCR20G105JR	81349	C-19	43	RCR20G182JR	81349	C-17	14
RCR20G113JR	81349	C-10	32	RCR20G182JR	81349	C-18	14
RCR20G113JR	81349	C-19	43	RCR20G182JR	81349	C-19	42
RCR20G113JR	81349	C-19	44	RCR20G183JR	81349	C-10	32
RCR20G113JR	81349	C-19	45	RCR20G183JR	81349	C-19	43
RCR20G114JR	81349	C-10	32	RCR20G183JR	81349	C-19	44
RCR20G114JR	81349	C-19	43	RCR20G183JR	81349	C-19	45
RCR20G114JR	81349	C-19	44	RCR20G184JR	81349	C-10	32
RCR20G114JR	81349	C-19	45	RCR20G184JR	81349	C-19	43
RCR20G121JP	81349	C-49	42	RCR20G184JR	81349	C-19	44
RCR20G121JR	81349	C-17	33	RCR20G184JR	81349	C-19	45
RCR20G121JR	81349	C-18	33	RCR20G201JR	81349	C-19	29
RCR20G123JR	81349	C-10	32	RCR20G202JR	81349	C-14	6
RCR20G123JR	81349	C-19	43	RCR20G202JR	81349	C-19	42
RCR20G123JR	81349	C-19	44	RCR20G203JR	81349	C-10	32
RCR20G123JR	81349	C-19	45	RCR20G203JR	81349	C-17	19
RCR20G124JR	81349	C-10	32	RCR20G203JR	81349	C-18	19
RCR20G124JR	81349	C-19	43	RCR20G203JR	81349	C-19	43
RCR20G124JR	81349	C-19	44	RCR20G203JR	81349	C-19	44
RCR20G124JR	81349	C-19	45	RCR20G203JR	81349	C-19	45
RCR20G132JR	81349	C-19	42	RCR20G204JR	81349	C-10	32
RCR20G132JR	81349	C-19	51	RCR20G204JR	81349	C-19	43
RCR20G133JR	81349	C-10	32	RCR20G204JR	81349	C-19	44
RCR20G133JR	81349	C-19	43	RCR20G204JR	81349	C-19	45
RCR20G133JR	81349	C-19	44	RCR20G221JP	81349	C-34	22

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PART NUMBER	FSCM	FIGURE	ITEM
RCR20G222JR	81349	C-19	42
RCR20G223JR	81349	C-10	32
RCR20G223JR	81349	C-19	43
RCR20G223JR	81349	C-19	44
RCR20G223JR	81349	C-19	45
RCR20G224JR	81349	C-10	32
RCR20G224JR	81349	C-19	43
RCR20G224JR	81349	C-19	44
RCR20G224JR	81349	C-19	45
RCR20G242JR	81349	C-14	5
RCR20G242JR	81349	C-19	42
RCR20G243JR	81349	C-10	32
RCR20G243JR	81349	C-14	30
RCR20G243JR	81349	C-19	43
RCR20G243JR	81349	C-19	44
RCR20G243JR	81349	C-19	45
RCR20G244JR	81349	C-10	32
RCR20G244JR	81349	C-19	43
RCR20G244JR	81349	C-19	44
RCR20G244JR	81349	C-19	45
RCR20G272JR	81349	C-14	8
RCR20G272JR	81349	C-17	25
RCR20G272JR	81349	C-18	25
RCR20G272JR	81349	C-19	33
RCR20G272JR	81349	C-19	42
RCR20G273JR	81349	C-10	32
RCR20G273JR	81349	C-17	36
RCR20G273JR	81349	C-18	37
RCR20G273JR	81349	C-19	43
RCR20G273JR	81349	C-19	44
RCR20G273JR	81349	C-19	45
RCR20G274JR	81349	C-10	32
RCR20G274JR	81349	C-14	13
RCR20G274JR	81349	C-19	43
RCR20G274JR	81349	C-19	44
RCR20G274JR	81349	C-19	45
RCR20G302JR	81349	C-19	42
RCR20G303JR	81349	C-10	32
RCR20G303JR	81349	C-19	43
RCR20G303JR	81349	C-19	44
RCR20G303JR	81349	C-19	45
RCR20G304JR	81349	C-10	32
RCR20G304JR	81349	C-14	10
RCR20G304JR	81349	C-14	15
RCR20G304JR	81349	C-19	43
RCR20G304JR	81349	C-19	44
RCR20G304JR	81349	C-19	45
RCR20G330JR	81349	C-17	28
RCR20G331JR	81349	C-17	31
RCR20G332JR	81349	C-19	42
RCR20G332JR	81349	C-19	42
RCR20G332JR	81349	C-19	50
RCR20G333JR	81349	C-10	32
RCR20G333JR	81349	C-19	43
RCR20G333JR	81349	C-19	44
RCR20G333JR	81349	C-19	45
RCR20G334JR	81349	C-10	32
RCR20G334JR	81349	C-14	14
RCR20G334JR	81349	C-19	42
RCR20G334JR	81349	C-19	43
RCR20G334JR	81349	C-19	44
RCR20G334JR	81349	C-19	45
RCR20G334JR	81349	C-19	48
RCR20G361JR	81349	C-18	29
RCR20G362JR	81349	C-17	24
RCR20G362JR	81349	C-18	24
RCR20G362JR	81349	C-19	40
RCR20G362JR	81349	C-19	42
RCR20G363JR	81349	C-5	12
RCR20G363JR	81349	C-10	32
RCR20G363JR	81349	C-13	11
RCR20G363JR	81349	C-17	13
RCR20G363JR	81349	C-18	13
RCR20G363JR	81349	C-19	30
RCR20G363JR	81349	C-19	43
RCR20G363JR	81349	C-19	44
RCR20G363JR	81349	C-19	45
RCR20G364JR	81349	C-10	32
RCR20G364JR	81349	C-19	43
RCR20G364JR	81349	C-19	44
RCR20G364JR	81349	C-19	45
RCR20G391JP	81349	C-41	45
RCR20G391JR	81349	C-17	41
RCR20G391JR	81349	C-18	27
RCR20G392JR	81349	C-10	32
RCR20G392JR	81349	C-19	42
RCR20G392JR	81349	C-19	42
RCR20G392JR	81349	C-19	45
RCR20G392JR	81349	C-19	52
RCR20G393JR	81349	C-10	32
RCR20G393JR	81349	C-19	43
RCR20G393JR	81349	C-19	44
RCR20G393JR	81349	C-19	45
RCR20G394JR	81349	C-10	32
RCR20G394JR	81349	C-19	43
RCR20G394JR	81349	C-19	44
RCR20G394JR	81349	C-19	45
RCR20G431JR	81349	C-17	29
RCR20G431JR	81349	C-18	31
RCR20G432JR	81349	C-10	32

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PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
RCR20G432JR	81349	C-19	45	RCR20G622JR	81349	C-10	32
RCR20G433JR	81349	C-10	32	RCR20G622JR	81349	C-19	44
RCR20G433JR	81349	C-19	43	RCR20G622JR	81349	C-19	45
RCR20G433JR	81349	C-19	44	RCR20G623JR	81349	C-10	32
RCR20G433JR	81349	C-19	45	RCR20G623JR	81349	C-19	37
RCR20G434JR	81349	C-17	34	RCR20G623JR	81349	C-19	43
RCR20G434JR	81349	C-18	35	RCR20G623JR	81349	C-19	44
RCR20G434JR	81349	C-19	43	RCR20G623JR	81349	C-19	45
RCR20G434JR	81349	C-19	44	RCR20G624JR	81349	C-19	43
RCR20G471JR	81349	C-17	30	RCR20G682JR	81349	C-10	32
RCR20G471JR	81349	C-18	30	RCR20G682JR	81349	C-19	42
RCR20G471JR	81349	C-19	38	RCR20G682JR	81349	C-19	44
RCR20G472JR	81349	C-10	32	RCR20G682JR	81349	C-19	45
RCR20G472JR	81349	C-14	4	RCR20G682JR	81349	C-19	47
RCR20G472JR	81349	C-19	43	RCR20G683JR	81349	C-10	32
RCR20G472JR	81349	C-19	45	RCR20G683JR	81349	C-19	42
RCR20G472JR	81349	C-19	54	RCR20G683JR	81349	C-19	43
RCR20G473JR	81349	C-10	32	RCR20G683JR	81349	C-19	44
RCR20G473JR	81349	C-17	35	RCR20G683JR	81349	C-19	45
RCR20G473JR	81349	C-18	36	RCR20G683JR	81349	C-19	49
RCR20G473JR	81349	C-19	34	RCR20G684JR	81349	C-19	43
RCR20G473JR	81349	C-19	43	RCR20G752JR	81349	C-10	32
RCR20G473JR	81349	C-19	44	RCR20G752JR	81349	C-19	44
RCR20G473JR	81349	C-19	45	RCR20G752JR	81349	C-19	45
RCR20G474JR	81349	C-19	43	RCR20G753JR	81349	C-10	32
RCR20G474JR	81349	C-19	44	RCR20G753JR	81349	C-19	43
RCR20G474JS	81349	C-11	33	RCR20G753JR	81349	C-19	44
RCR20G511JR	81349	C-17	20	RCR20G753JR	81349	C-19	45
RCR20G511JR	81349	C-18	20	RCR20G754JR	81349	C-19	43
RCR20G512JR	81349	C-10	32	RCR20G822JR	81349	C-10	32
RCR20G512JR	81349	C-19	44	RCR20G822JR	81349	C-19	44
RCR20G512JR	81349	C-19	45	RCR20G822JR	81349	C-19	45
RCR20G513JR	81349	C-10	32	RCR20G823JR	81349	C-10	32
RCR20G513JR	81349	C-19	43	RCR20G823JR	81349	C-19	43
RCR20G513JR	81349	C-19	44	RCR20G823JR	81349	C-19	44
RCR20G513JR	81349	C-19	45	RCR20G823JR	81349	C-19	45
RCR20G514JR	81349	C-19	43	RCR20G824JR	81349	C-19	43
RCR20G514JR	81349	C-19	44	RCR20G910JR	81349	C-11	32
RCR20G562JR	81349	C-10	32	RCR20G912JR	81349	C-10	32
RCR20G562JR	81349	C-19	44	RCR20G912JR	81349	C-19	44
RCR20G562JR	81349	C-19	45	RCR20G912JR	81349	C-19	45
RCR20G562JR	81349	C-19	45	RCR20G913JR	81349	C-10	32
RCR20G562JR	81349	C-19	53	RCR20G913JR	81349	C-19	43
RCR20G563JR	81349	C-10	32	RCR20G913JR	81349	C-19	44
RCR20G563JR	81349	C-19	32	RCR20G913JR	81349	C-19	45
RCR20G563JR	81349	C-19	43	RCR20G914JR	81349	C-19	43
RCR20G563JR	81349	C-19	44	RCR32G203FS	81349	C-10	24
RCR20G563JR	81349	C-19	45	RCR32G560JP	81349	C-49	41
RCR20G564JR	81349	C-19	43	RJR12FY501R	81349	C-17	26
RCR20G621JR	81349	C-19	39	RJR12FY501R	81349	C-18	26

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PART NUMBER	FSCM	FIGURE	ITEM
RLR05C1000FP	81349	C-36	11
RLR05C1002FP	81349	C-47	65
RLR07C1001GS	81349	C-10	17
RLR07C1002GS	81349	C-11	26
RLR07C1213FS	81349	C-10	28
RLR07C1243FS	81349	C-10	23
RLR07C1743FS	81349	C-10	30
RLR07C2401GS	81349	C-11	30
RLR07C3743FS	81349	C-10	25
RLR07C6200GS	81349	C-11	31
RLR07C7500GS	81349	C-10	16
RLR07C8202GS	81349	C-11	25
RNR55C1000FP	81349	C-50	27
RNR55C1001FP	81349	C-35	27
RNR55C1002FP	81349	C-35	30
RNR55C1103FP	81349	C-50	28
RNR55C1472FS	81349	C-19	41
RNR55C1502FP	81349	C-35	31
RNR55C1502FP	81349	C-52	24
RNR55C1503FP	81349	C-50	28
RNR55C2000FP	81349	C-50	27
RNR55C2263FP	81349	C-50	28
RNR55C2492FP	81349	C-18	16
RNR55C3010FP	81349	C-50	27
RNR55C3011FP	81349	C-35	28
RNR55C3011FP	81349	C-49	38
RNR55C3013FP	81349	C-50	28
RNR55C3161FP	81349	C-50	29
RNR55C3401FP	81349	C-17	16
RNR55C4020FP	81349	C-50	27
RNR55C4750FP	81349	C-41	43
RNR55C4990FP	81349	C-50	27
RNR55C4991FP	81349	C-35	29
RNR55C4991FP	81349	C-41	44
RNR55C4991FP	81349	C-47	64
RNR55C6651FP	81349	C-50	30
RNR55C6811FP	81349	C-49	39
RNR55C8062FP	81349	C-50	28
RNR55C8252FSR	81349	C-17	18
RNR55C8252FSRJ	81349	C-18	18
RNR55C8451FP	81349	C-52	25
RNR60C1471FP	81349	C-18	23
RNR60C1471FS	81349	C-17	23
RNR60C1872FS	81349	C-17	22
RNR60C2372FS	81349	C-18	22
RNR646	19130	C-6	18
RNR74S6811FR	81349	C-18	34
ROX-1E40MOHM	14298	C-10	22
RPE110X7R681K100V	18796	C-24	2
RPE110X7R681K100V	72982	C-41	9
RPE110X7R681K100V	18796	C-50	21
RV4LAYSA104A	81349	C-5	11
RV4LAYSA251A	81349	C-5	9
RV6NAYSD102A	81349	C-13	19
RV6NAYSD102A	81349	C-20	12
RV6NAYSD104A	81349	C-13	12
RWR74S4641FR	81349	C-19	35
RWR78N1002FR	81349	C-18	32
RWR78S2002FR	81349	C-17	32
RWR80S1R500FP	81349	C-6	17
S-5994	55993	C-4	2
SE16XC01	81349	C-36	7
SE26XF01	81349	C-53	35
SE26XF02	81349	C-53	37
SG7182T/883B	34333	C-24	23
SNC54L193J	01295	C-32	13
SNC54184J	01295	C-32	12
SNJ54LS193J	01295	C-34	18
SNJ55182J	01295	C-37	15
SOS-8632-12	99256	C-3	10
TMS1/2-9	06090	C-25	6
TMS1/4-9	06090	C-25	5
TMS1/4-9	06090	C-27	4
TMS1/4-9	06090	C-28	4
TMS1/4-9	06090	C-29	2
TMS1/4-9	06090	C-30	4
TMS3/8-1.75-9	06090	C-26	3
TO-HJ-302V	32252	C-24	46
TX-0112	54893	C-43	41
TX-3188	50434	C-23	6
TX-3188	50434	C-24	19
TX-3188	50434	C-39	14
TX-3188	50434	C-47	27
TYPE7009-ER267K0	01606	C-52	33
T251	92219	C-22	17
T251	92219	C-38	9
T251	92219	C-40	7
T251	92219	C-42	12
T251	92219	C-44	10
T251	92219	C-46	8
T251	92219	C-48	1
T251	92219	C-51	9
UA723HMQBIF	07263	C-19	8
UA78M12HMQB	70263	C-10	4
UL-256-1	66034	C-22	10
U332-2	17856	C-39	23
YAE18Z2	09922	C-53	30
Y76-105	50638	C-10	8
Y76-105	57958	C-11	36
ZEROHM	11507	C-10	27

PART NUMBERS

PART NUMBER	FSCM	FIGURE	ITEM
001-6500-513	31413	C-25	4
01-0101-0424	12881	C-22	5
010-8509-502	31413	C-53	25
013-2401-000-599	98291	C-9	23
020440B018	13764	C-9	16
09 SPS01-023	55285	C-9	27
10-05-1363-1405	18565	C-20	1
10-118024-4	28815	C-22	26
10-123494-2	28815	C-42	5
10-123495-1	28815	C-21	49
10-123504-1	28815	C-46	0
10-123505-1	28815	C-21	51
10-123524-1	28815	C-40	F1
10-123525-1	28815	C-21	48
10-123544-2	28815	C-48	0
10-123545-1	28815	C-21	52
10-123555-1	28815	C-21	53
10-123584-1	28815	C-21	25
10-123594-1	28815	C-21	22
10-123614-1	28815	C-21	20
10-123624-2	28815	C-21	23
10-123634-2	28815	C-22	27
10-124204-1	28815	C-48	0
10-301-02-05	18310	C-11	2
10-301-2-01	18310	C-10	2
10PS-D10	56289	C-10	12
100-206-10	99378	C-39	64
10350-SS-0832-7	06540	C-21	89
10359-SS-0832-7	06540	C-20	3
10648EL2-1	08719	C-20	20
10648EL2-2	08719	C-20	21
10648EL2-3	08719	C-20	22
10648EL2-4	08719	C-20	23
12-116739-2	28815	C-22	6
12-116739-502	28815	C-22	7
12-118023-1	28815	C-23	1
12-123-959-6	28815	C-23	19
12-123-960-9	28815	C-23	20
12-123493-1	28815	C-43	1
12-123503-1	15942	C-47	1
12-123523-1	28815	C-41	1
12-123543-1	28815	C-49	1
12-123583-1	28815	C-32	1
12-123593-1	28815	C-35	1
12-123613-1	28815	C-37	1
12-123623-1	28815	C-34	1
12-123633-1	28815	C-24	1
12-123959-2	28815	C-23	13
12-123959-3	28815	C-23	16
12-123959-4	28815	C-23	32
12-123959-5	28815	C-23	27
12-123960-2	28815	C-23	14
12-123960-3	28815	C-23	17
12-123960-4	28815	C-23	33
12-123960-5	28815	C-24	16
12-123960-6	28815	C-24	15
12-123960-7	28815	C-23	28
12-123960-8	28815	C-24	17
12-123966-1	28815	C-23	10
12-123966-2	28815	C-23	12
12-123966-3	28815	C-23	15
12-123966-5	28815	C-24	14
12-123967-1	28815	C-24	43
12-123967-2	28815	C-24	44
12-123967-3	28815	C-24	42
12-123968-1	28815	C-24	45
12-124203-1	28815	C-50	1
12-124340-1	28815	C-47	67
12-124347-1	28815	C-41	48
12-124348-1	28815	C-47	68
12-124349-1	28815	C-41	16
12-124350-1	28815	C-47	36
12-124356-1	28815	C-47	37
12-124357-1	28815	C-47	34
12-124358-1	28815	C-47	35
12-124359-1	28815	C-43	34
1270-066	72982	C-38	4
1270-066	72982	C-42	7
1270-066	72982	C-44	7
1270-066	72982	C-46	5
1270-066	72982	C-51	4
14007-1P4	91506	C-32	4
14007-1P4	91506	C-33	4
14007-1P4	91506	C-34	6
14007-1P4	91506	C-35	4
14007-1P4	91506	C-36	4
14007-1P4	91506	C-37	4
14009-1P12	91506	C-31	5
14009-1P12	91506	C-32	2
14009-1P12	91506	C-33	3
14009-1P12	91506	C-34	5
14009-1P12	91506	C-35	2
14009-1P12	91506	C-36	3
14009-1P12	91506	C-37	3
14009-1P14	91506	C-31	4
14009-1P14	91506	C-32	3
14009-1P14	91506	C-33	2
14009-1P14	91506	C-34	4
14009-1P14	91506	C-35	3
14009-1P14	91506	C-36	2

PART NUMBERS

PART NUMBER	FSCM	FIGURE	ITEM
14009-1P14	91506	C-37	2
14009-1P4	91506	C-31	6
1410-14	83330	C-13	10
1416-6	83330	C-9	5
1416-8	83330	C-9	11
1430-4-11.2	88245	C-15	1
1430-4-11.2	88245	C-16	3
1433-4-11.2	88245	C-15	22
1433-7-11	88245	C-9	15
1479	25120	C-39	17
1493	83330	C-5	10
1569/BZXJC	04713	C-49	51
1590/BGBJC	04713	C-41	49
16-119513-1	28815	C-21	32
16-124240-1	28815	C-24	20
16-124240-2	28815	C-23	8
16-125027-1	28815	C-47	10
1692/BEBJC	04713	C-47	3
17-123787-22	81349	C-24	47
17-123787-7	28815	C-49	5
1741S/BCXJC	04713	C-35	44
1951-1-1062-1	15942	C-39	F39
1951-1-1063-1	15942	C-39	F50
1951-1-1064-1	15942	C-39	F51
1951-1-2023-1	15942	C-39	58
1951-1-2024-1	15942	C-39	59
1951-1-2025-1	15942	C-39	60
1951-1-2026-1	15942	C-39	61
1951-1-2067-1	15942	C-39	62
1951-1-2368-1	15942	C-53	45
1951-1-2442-1	15942	C-39	66
1951-1-3021-1	15942	C-38	2
1951-1-3021-1	15942	C-40	1
1951-1-3021-1	15942	C-42	4
1951-1-3021-1	15942	C-44	1
1951-1-3021-1	15942	C-46	1
1951-1-3021-1	15942	C-51	1
1951-1-3022-1	15942	C-48	9
1951-1-3040-1	15942	C-21	72
1951-1-3067-1	15942	C-21	56
1951-1-3067-10	15942	C-21	65
1951-1-3067-11	15942	C-21	66
1951-1-3067-12	15942	C-21	67
1951-1-3067-13	15942	C-21	68
1951-1-3067-2	15942	C-21	57
1951-1-3067-3	15942	C-21	58
1951-1-3067-4	15942	C-21	59
1951-1-3067-5	15942	C-21	60
1951-1-3067-6	15942	C-21	61
1951-1-3067-7	15942	C-21	62
1951-1-3067-8	15942	C-21	63
1951-1-3067-9	15942	C-21	64
1951-1-3136-1	15942	C-21	77
1951-1-3137-2	15942	C-21	82
1951-1-3247-1	15942	C-21	8
1951-1-3247-2	15942	C-21	45
1951-1-3297-1	15942	C-21	34
1951-1-4021-1	15942	C-21	29
1951-1-4021-501	15942	C-21	30
1951-1-4070-2	15942	C-42	2
1951-1-4080-1	15942	C-22	8
1951-1-4080-501	15942	C-22	9
1951-1-4083-1	15942	C-21	70
1951-1-4083-2	15942	C-21	75
1951-1-4083-501	15942	C-21	71
1951-1-4083-502	15942	C-21	76
1951-1-4123-1	15942	C-38	7
1951-1-4126-1	15942	C-45	1
1951-1-4127-3	15942	C-44	3
1951-1-4128-1	15942	C-21	50
1951-1-4131-1		C-39	1
1951-1-4132-1	15942	C-38	1
1951-1-4133-1	15942	C-21	47
1951-1-4136-1	28815	C-33	1
1951-1-4137-1	15942	C-21	24
1951-1-4190-1	15942	C-21	54
1951-1-4191-1	15942	C-40	5
1951-1-4192-1	15942	C-51	7
1951-1-4193-1	15942	C-44	2
1951-1-4194-1	15942	C-46	2
1951-1-4195-1	15942	C-21	83
1951-1-4201-1	15942	C-42	1
1951-1-4202-1	15942	C-48	16
1951-1-4204-1	15942	C-21	9
1951-1-4206-1	15942	C-21	81
1951-1-4207-1	15942	C-21	78
1951-1-4207-2	15942	C-21	79
1951-1-4207-3	15942	C-21	80
1951-1-4264-1	15942	C-21	19
1951-1-4705-1	15942	C-22	28
1951-1-4717-1	15942	C-22	1
1951-1-4717-501	15942	C-22	2
1951-1-4872-1	15942	C-31	1
1951-1-4873-2	15942	C-21	26
1951-1-5014-1	15942	C-53	15
1951-1-5014-501	15942	C-53	14
1951-1-5014-502	15942	C-53	32
1951-1-5014-503	15942	C-53	33
1951-1-5022-1	15942	C-21	42
1951-1-5022-501	15942	C-21	43

PART NUMBERS

PART NUMBER	FSCM	FIGURE	ITEM
1951-1-5022-502	15942	C-21	46
1951-1-5022-503	15942	C-21	13
1951-1-5022-504	15942	C-21	41
1951-1-5022-505	15942	C-21	44
1951-1-5022-506	15942	C-21	5
1951-1-5023-2	15942	C-21	1
1951-1-5023-501	15942	C-21	2
1966-1-2091-1	15942	C-21	15
1966-1-3332-2	15942	C-21	88
2-56x1/4BHD	70518	C-31	3
2007-5061-02	26805	C-29	1
2007-5061-02	26805	C-53	1
2043-2	71279	C-14	2
2054-0000-02	16179	C-22	25
21-126387-1	28815	C-50	F26
21-126388-1	28815	C-50	F27
21-129246-1	28815	C-24	F9
21-129247-1	28815	C-24	F6
21-129248-1	28815	C-24	F8
21-129567-1	28815	C-35	F25
238-3187	27802	C-43	35
24S-2-8-3-L	07344	C-4	6
2520	83330	C-9	7
2527	83330	C-11	38
2555	83330	C-11	39
258B5	00136	C-39	16
2643-2	71279	C-48	12
2652	83330	C-31	12
2662	83330	C-4	25
2662	83330	C-7	9
2662	83330	C-9	1
2829-115-4	98159	C-10	33
2829-115-4	98159	C-11	37
2829-75-3	98159	C-49	53
30GA-D22	56289	C-10	13
302-0002-002	31413	C-53	26
3054	91833	C-53	34
31301.5	75917	C-2	47
3180-2242-00	26805	C-53	41
330620	00779	C-2	45
35-7B2-10-3	18915	C-21	73
3509	24972	C-2	6
4050	83330	C-9	9
408-023-500-212	31781	C-4	22
408-240-328	31781	C-4	21
4102F	25120	C-39	15
422-023-520-100	31781	C-17	3
422-023-520-100	31781	C-18	3
422-023-520-100	31781	C-19	3
4471C-7	88245	C-9	17

PART NUMBER	FSCM	FIGURE	ITEM
450-3422-01-03	71279	C-33	7
450-3422-01-03	71279	C-37	19
450-3755-01-03	71279	C-35	7
450-3755-01-03	71279	C-39	2
450-3755-01-03	71279	C-41	2
450-3755-01-03	71279	C-43	2
450-3755-01-03	71279	C-45	2
450-3755-01-03	71279	C-47	2
450-3755-01-03	04713	C-49	52
450-3755-01-03	71279	C-50	2
450-3755-01-03-0	71279	C-52	2
4500	12515	C-29	3
4500	12515	C-39	70
4500	12515	C-44	17
4500	12515	C-46	10
5R2-3	71286	C-21	3
5S3-2	71286	C-53	16
5S5-1	71286	C-22	4
5S5-13	71286	C-22	3
5S5-13	71286	C-53	17
50-645-6001-89	98291	C-46	9
500D225M350DC2	56289	C-11	19
5048944-1	57958	C-51	2
5048946-1	57958	C-52	1
5050030-1	57958	C-45	20
5050030-2	57958	C-45	22
5050030-3	57958	C-45	23
5050030-4	57958	C-45	25
5050030-5	57958	C-45	26
5050030-6	57958	C-45	24
51-712-003	33095	C-22	16
51-712-003	33095	C-38	5
51-712-003	33095	C-40	3
51-712-003	33095	C-42	8
51-712-003	33095	C-44	9
51-712-003	33095	C-46	7
51-712-003	33095	C-48	11
516-0014-505	15942	C-53	27
516-0018-000	31413	C-53	43
516-0027-000	31413	C-53	31
5250	76493	C-9	21
5411-32	86928	C-6	5
558-7107-17	71279	C-39	19
558-7107-23	71279	C-39	20
5710-169-30	86928	C-13	15
5710-190-30	86928	C-2	44
572-4826-01-0156	71279	C-5	1
572-4826-01-0156	71279	C-6	16
572-4826-01-0156	71279	C-7	10
572-4826-01-0156	71279	C-8	16

PART NUMBERS

PART NUMBER	FSCM	FIGURE	ITEM	PART NUMBER	FSCM	FIGURE	ITEM
572-4826-01-0156	71279	C-13	21				
600D825F100KD4	56289	C-9	22				
68-108294-1	28815	C-24	8				
715P22358LD3	56289	C-11	20				
75000000	11236	C-17	2				
75000000	11236	C-18	2				
75000000	11236	C-19	2				
7704501EX	14933	C-11	3				
8000-DG2-5	91506	C-31	16				
8000DG2-5	91506	C-43	37				
8004-1G23-5	91506	C-45	37				
8052	81349	C-31	11				
8052	91293	C-43	11				
8052	91293	C-49	22				
8053	91293	C-45	11				
8103908JX	14933	C-36	21				
8111-100X7R0681K	72982	C-23	4				
8111-100X7R0681K	72982	C-47	24				
8944	83330	C-6	9				
8944	83330	C-7	3				
8944	83330	C-15	18				
93L08DMQB	07263	C-37	12				
93L28DMQB	07263	C-37	11				
94867HDH-4	94867	C-20	14				
96L02DMQB	07263	C-33	20				
96L02DMQB	07263	C-34	16				
97-555CDC	30817	C-21	37				
9723-SS-0256-7	06540	C-22	12				
9723-SS-0440-7	06540	C-40	6				
9723-SS-0440-7	06540	C-42	11				
9723-SS-0440-7	06540	C-44	4				
9723-SS-0440-7	06540	C-46	4				
9723-SS-0440-7	06540	C-48	15				
9723-SS-0440-7	06540	C-51	8				
9723SS0440-7	06540	C-38	8				
9724-SS-0256-7	06540	C-22	31				

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain the panoramic indicator and indicator control. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS.

a. Column(1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instruction to identify the material (e.g., "Use cleaning compound, item 5, App. D").

b. Column(2) - Level. This column identifies the lowest level of maintenance that requires the list item.

(enter as applicable)

C - Operator/Crew
O - Organizational Maintenance
F - Direct Support Maintenance
H - General Support Maintenance

c. Column(3) - National Stock Number. This is the National stock number assigned to the item, use it to request or requisition the item.

d. Column(4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parantheses followed by the part number.

e. Column(5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO	(2) LEVEL	(3) NSN	(4) DESCRIPTION	(5) U/M
1	H	8040-00-092-2816	Epoxy adhesive	oz
2		Not Used		
3	H	9330-01-174-9426	Polyester film	ft
4	H	8029-00-246-8806	Brush, soft	ea
5	H	8305-00-267-3015	Cloth, lint-free	ro
6	H	8030-00-067-6746	Locking compound MIL-S-22473, GR-C	ea
7		Not Used		
8	H		Enamel, semi-gloss, MIL-E-15090, class 2, type III, color no. 24410	qt
9	H		Sandpaper No. 000	sht
10	H	5970-00-812-2968	Insulation Sleeving	ft
11	H	3439-01-008-7580	Solder, wireflux SN63WRMAP3	ro
12	H	4020-00-656-1125	Lacing Tape, MIL-T-713, size 4, blank	ro
13		Not Used		
14	H	6850-00-984-5853	Trichlorotrifluorethane, MIL-C-18718	gl
15	H	6145-01-049-9902	Wire, electrical, 30 AWG QQW343524SIT	ft
16	H		Insulation sleeving 81436 P/N 24 AWG	ft
17	H		Insulation sleeving 81349 P/N Type TFE 24 AWG	ft
18	H	6145-00-808-4849	Wire, electrical, 24 AWG, white	ft
19	H	6145-00-059-5602	Wire, electrical, 24 AWG, black	ft
20	H	6145-00-059-5603	Wire, electrical, 24 AWG, red	ft
21	H		Wire, electrical, 28815 P/N 16-119806-1	ft
22	H	6145-00-062-5699	Wire, electrical 20 AWG, red	ft
23	H	6145-00-226-6721	Wire, electrical 24 AWG, violet	ft
24	H	6145-00-681-7849	RF Cable	ft
25	H		RF Cable 12515 P/N 4500	ft
26	H	6145-00-088-0404	Wire, electrical, 20 AWG, white	ft
27	H	6145-00-062-6686	Wire, electrical, 20 AWG, black P/N EXE 20-19/32-0	ft
28	H		Wire, electrical, 20 AWG, green P/N EXE 20-19/32-8	ft
29	H		Wire, electrical, Type 24 AWG	ft
30		Not Used		
31	H	7510-00-117-8805	Adhesive Tape	ro

APPENDIX E
ILLUSTRATED LIST OF MANUFACTURED ITEMS

E-1. Introduction.

This appendix includes complete instuction for making items authorized to be manufactured or fabricated at organizational unit maintenance.

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers fabrication criteria.

All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

E-2. Manufactured Items Part Number Index.

Part Number	Nomenclature	Figure No.
N/A	Test Cable, AC Power	E-1

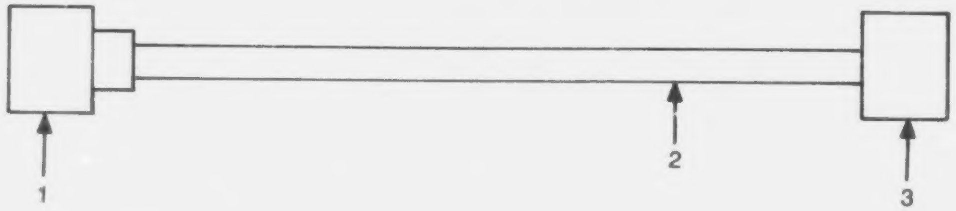

Figure E-1. Test Cable, AC Power

Parts List

1. Connector P1 to Indicator Control, C-10027/USQ, P/N MS27484T16F8S.
2. Cable, 3 Conductor, Stranded Wire, 20 AWG per wire. Length: As Required (maximum 15 feet).
3. Connector (P2), 115V ac, 1-Phase with Ground, 400 Hz.

Wire List

From	To	Purpose
P1-A	P2-(NOTE)	115VAC-1
P1-D	P2-(NOTE)	115VAC-NEUTRAL
P1-H	P2-(NOTE)	CHASSIS GROUND

NOTE: Determine connector type at local installation. Minimum current capability per plug terminal is 15 amps.

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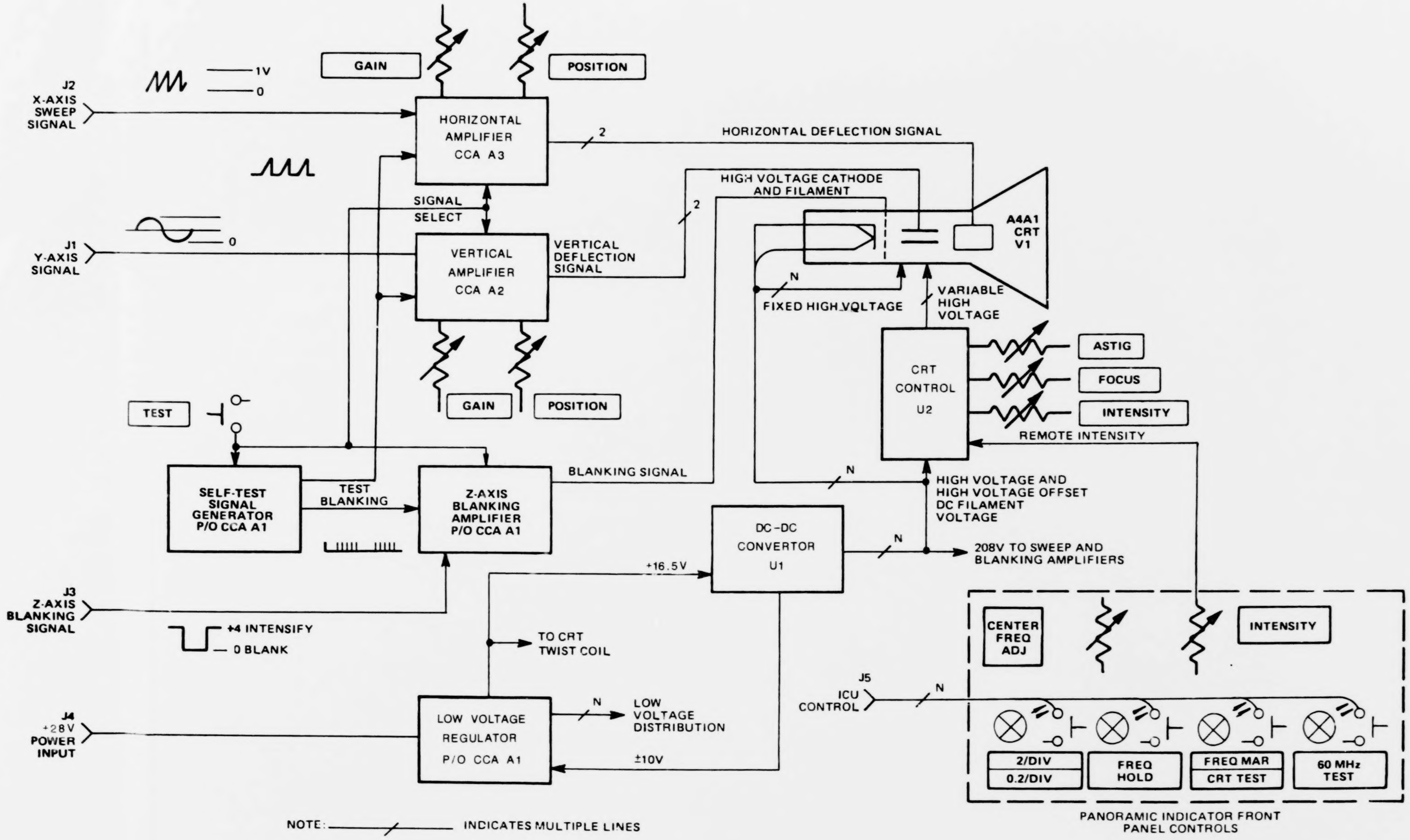
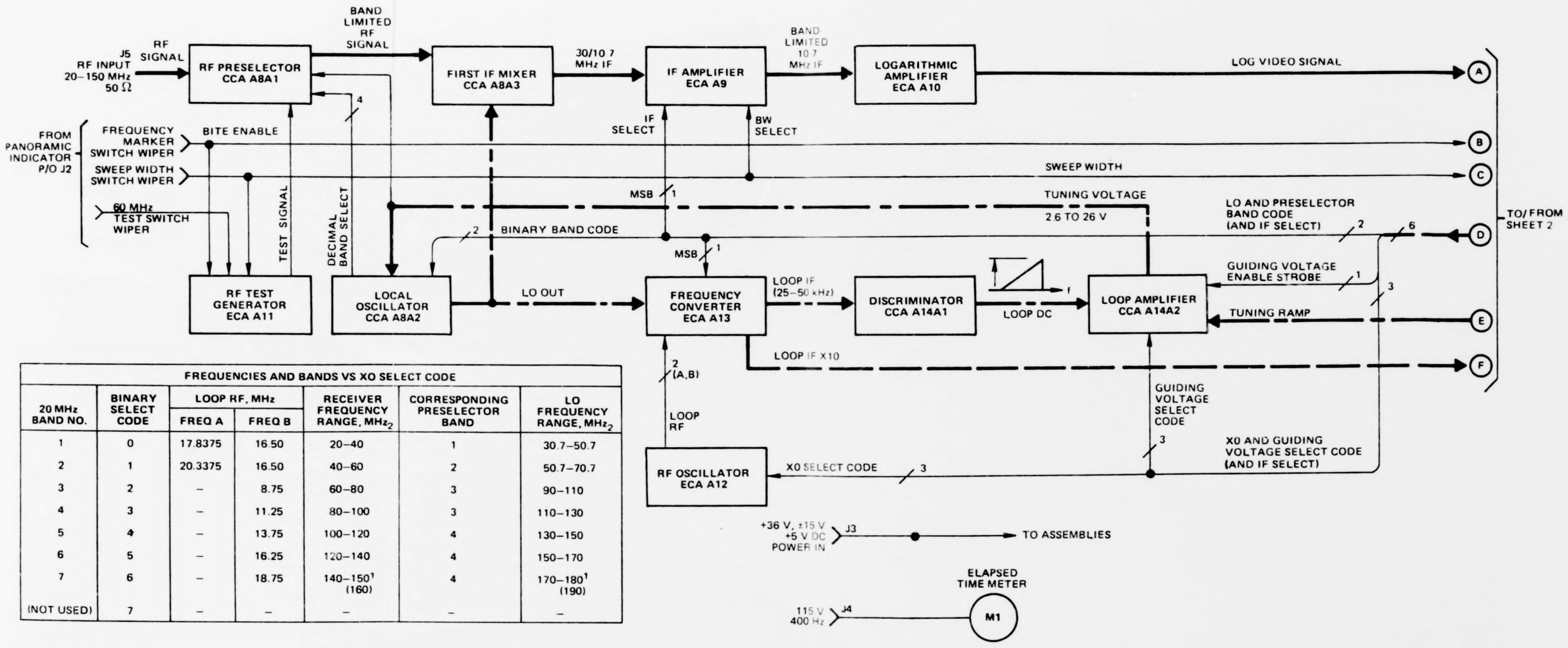


Figure FO-1. Panoramic Indicator Functional Block Diagram



FREQUENCIES AND BANDS VS XO SELECT CODE						
20 MHz BAND NO.	BINARY SELECT CODE	LOOP RF, MHz		RECEIVER FREQUENCY RANGE, MHz[2]	CORRESPONDING PRESELECTOR BAND	LO FREQUENCY RANGE, MHz[2]
		FREQ A	FREQ B			
1	0	17.8375	16.50	20–40	1	30.7–50.7
2	1	20.3375	16.50	40–60	2	50.7–70.7
3	2	–	8.75	60–80	3	90–110
4	3	–	11.25	80–100	3	110–130
5	4	–	13.75	100–120	4	130–150
6	5	–	16.25	120–140	4	150–170
7	6	–	18.75	140–150[1] (160)	4	170–180[1] (190)
(NOT USED)	7	–	–	–	–	–

SWEEP WIDTH SELECTION		
SWEEP WIDTH	BINARY	IF BW A9
±10 MHz	L	100 kHz
±1 MHz	H	15 kHz

A9 IF SELECT		
BINARY	INPUT IF	BANDS
L	10.7 MHz	1 & 2
H	30 MHz	3 & 4

LO AND PRESELECTOR BANDS			
BAND CODE		FREQUENCY RANGE	
DECIMAL (PRESELECTOR)	BINARY (LO)	PRESELECTOR, MHz[2]	LO, MHz[2]
1	0	20–40	30.7–50.7
2	1	40–60	50.7–50.7
3	2	60–100	90–130
4	3	100–150[1] (160)	130–180[1] (190)

NOTES

1. RECEIVER SIGNAL INHIBITED ABOVE THIS POINT (SCAN CONTINUES TO END OF 20 MHz BAND, HOWEVER)
2. BAND EDGES INDICATED FOR WIDE SWEEP MODE. OVERLAP IN NARROW SWEEP MODE IS 1 MHz

LEGEND

MAIN SIGNAL PATH ━━━━━━━━
LO SYNTHESIZER LOOP ━━━ ━ ━━━
MAJOR TIMING AND SWEEP CONTROL LINES ━━ ━━ ━━

Figure FO-2. Indicator Control Functional Block Diagram (Sheet 1 of 2)

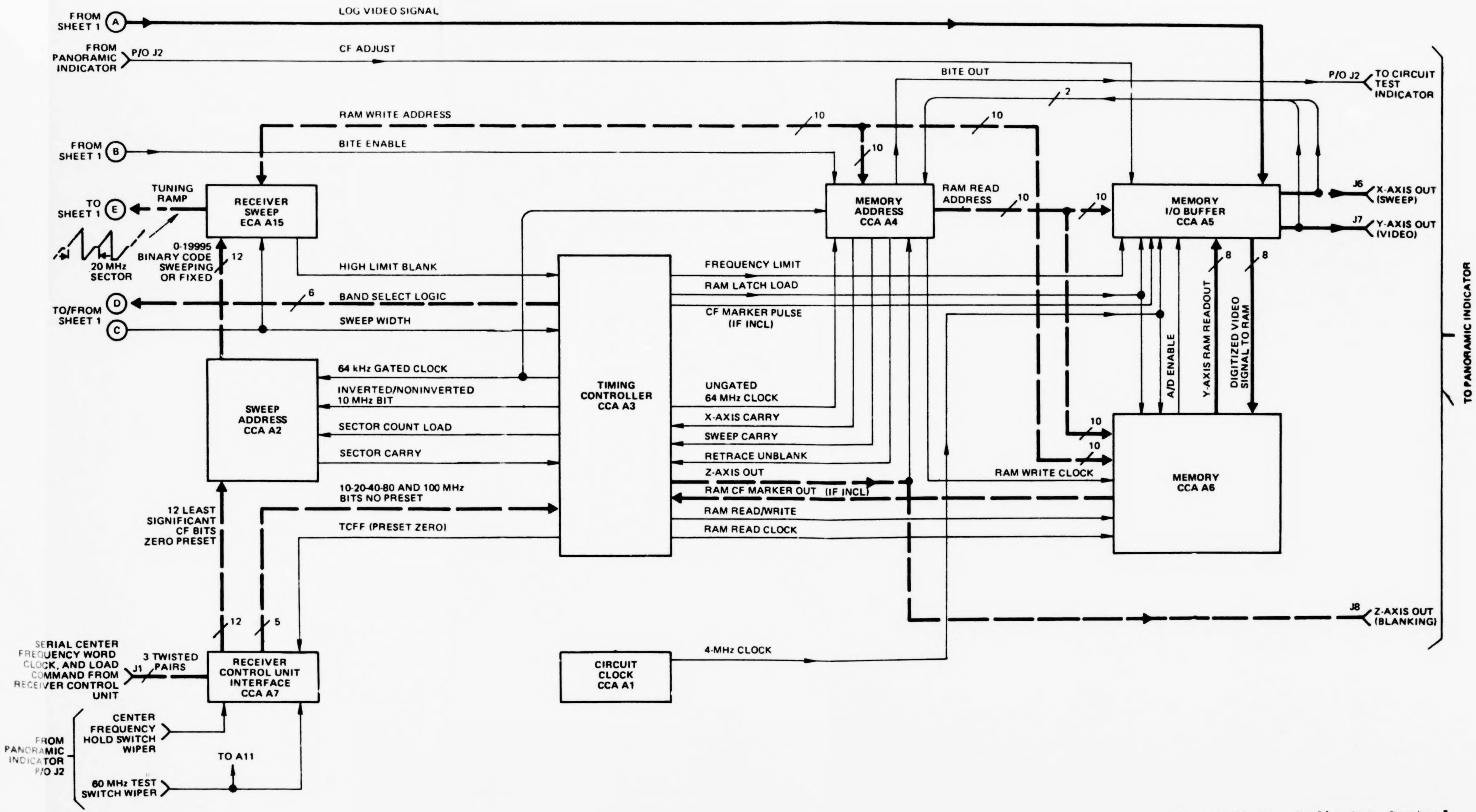


Figure FO-2. Indicator Control Functional Block Diagram (Sheet 2 of 2)

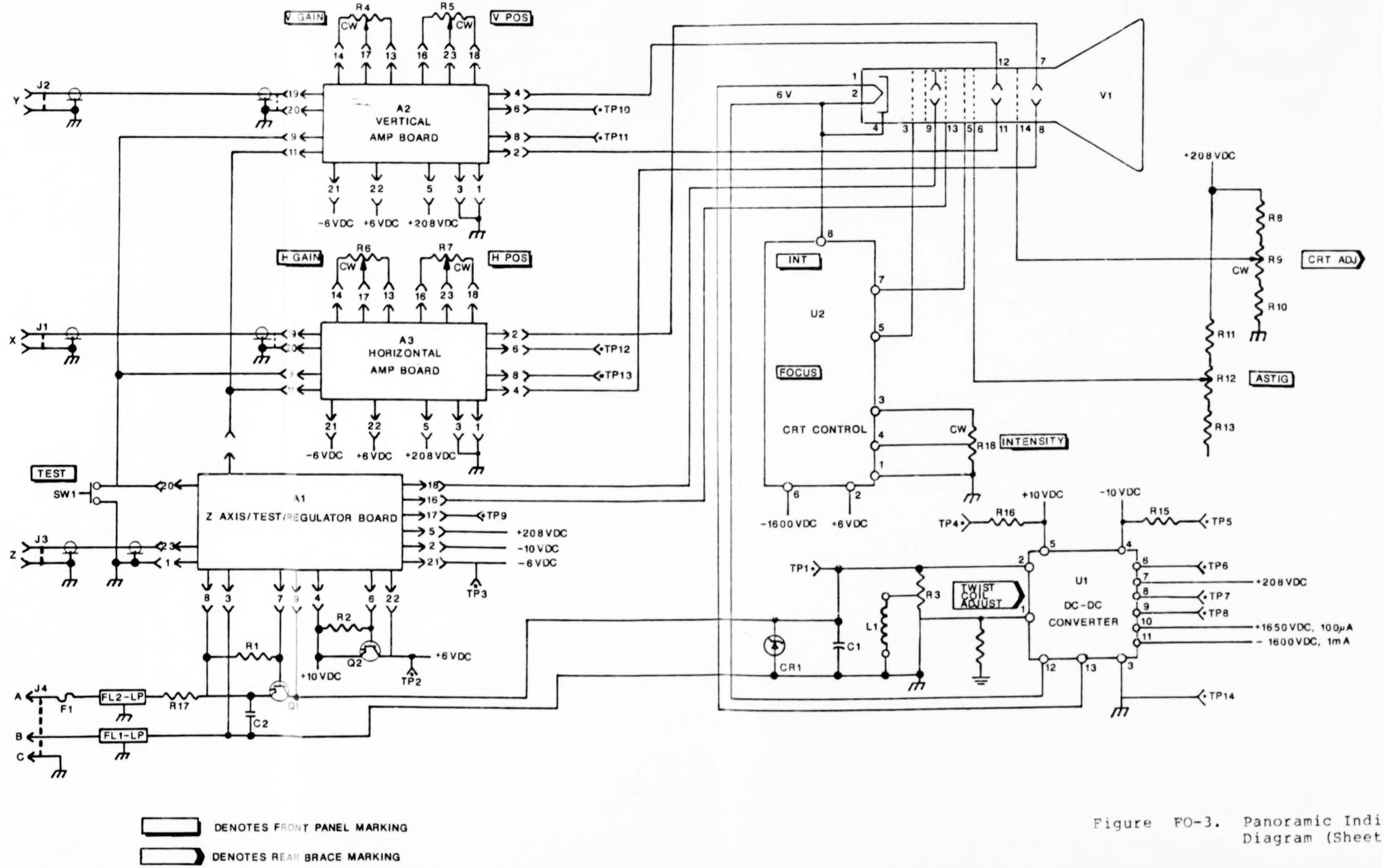


Figure FO-3. Panoramic Indicator Wiring Diagram (Sheet 1 of 2)

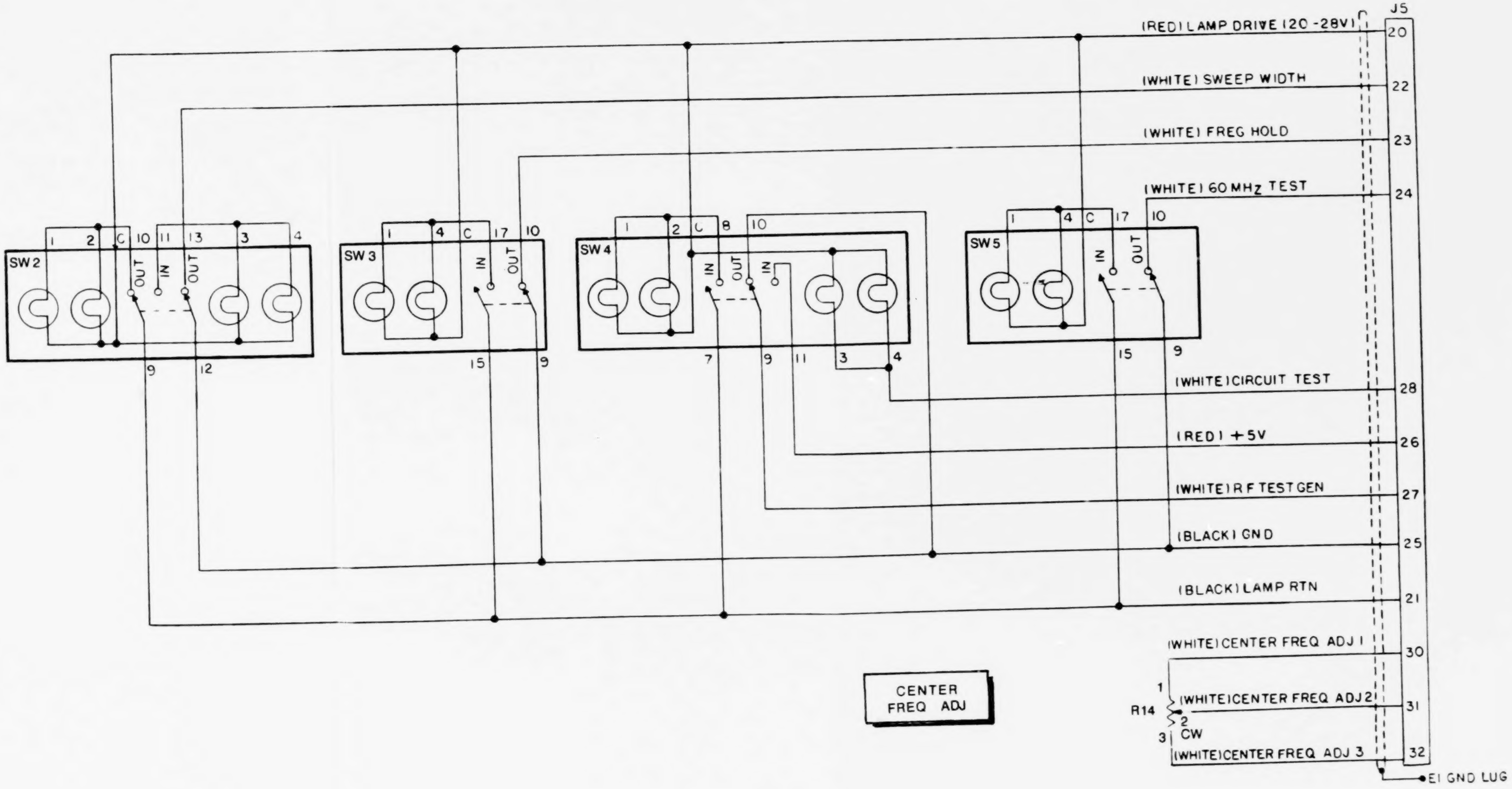


Figure FO-3. Panoramic Indicator Wiring Diagram (Sheet 2 of 2)

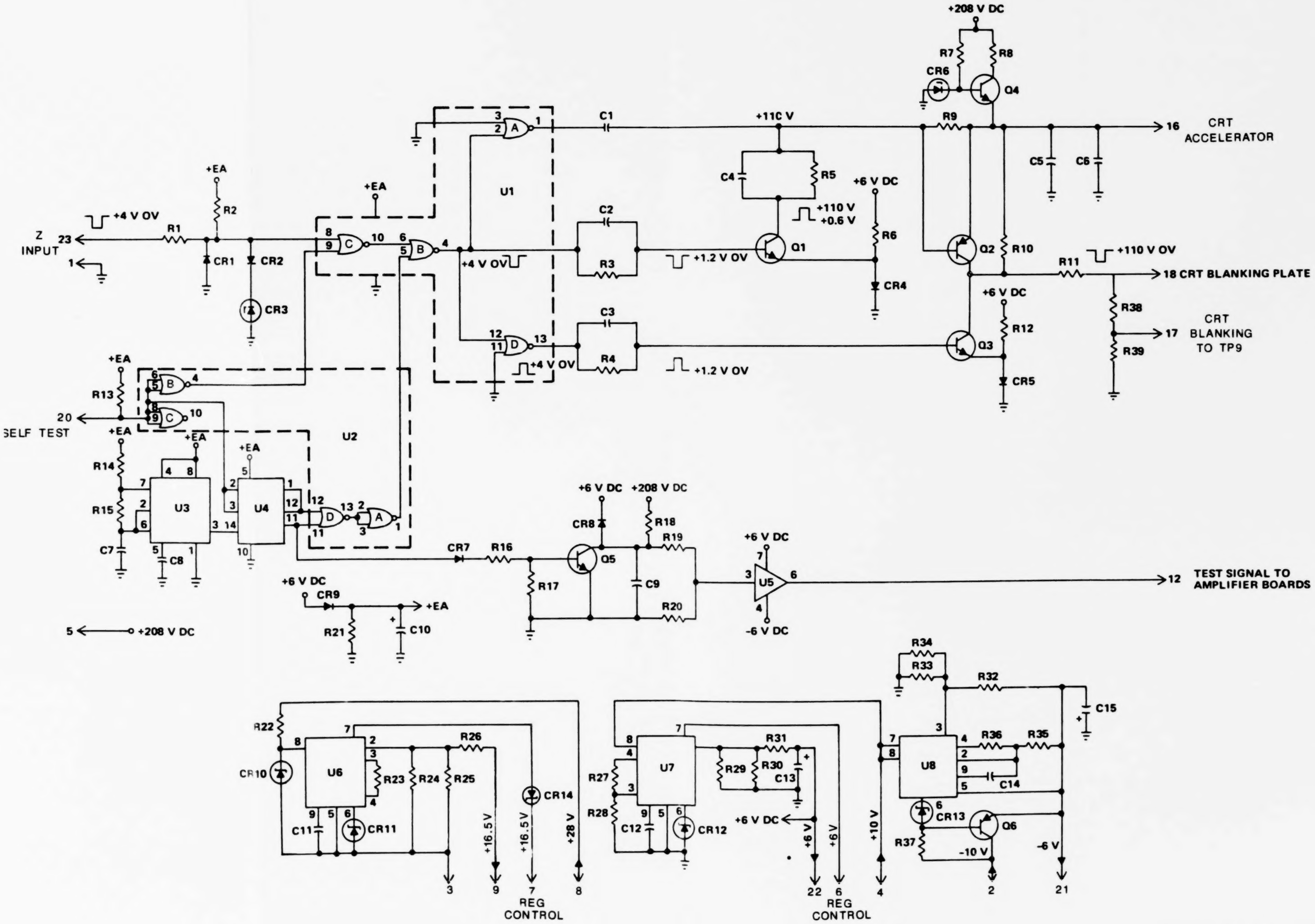
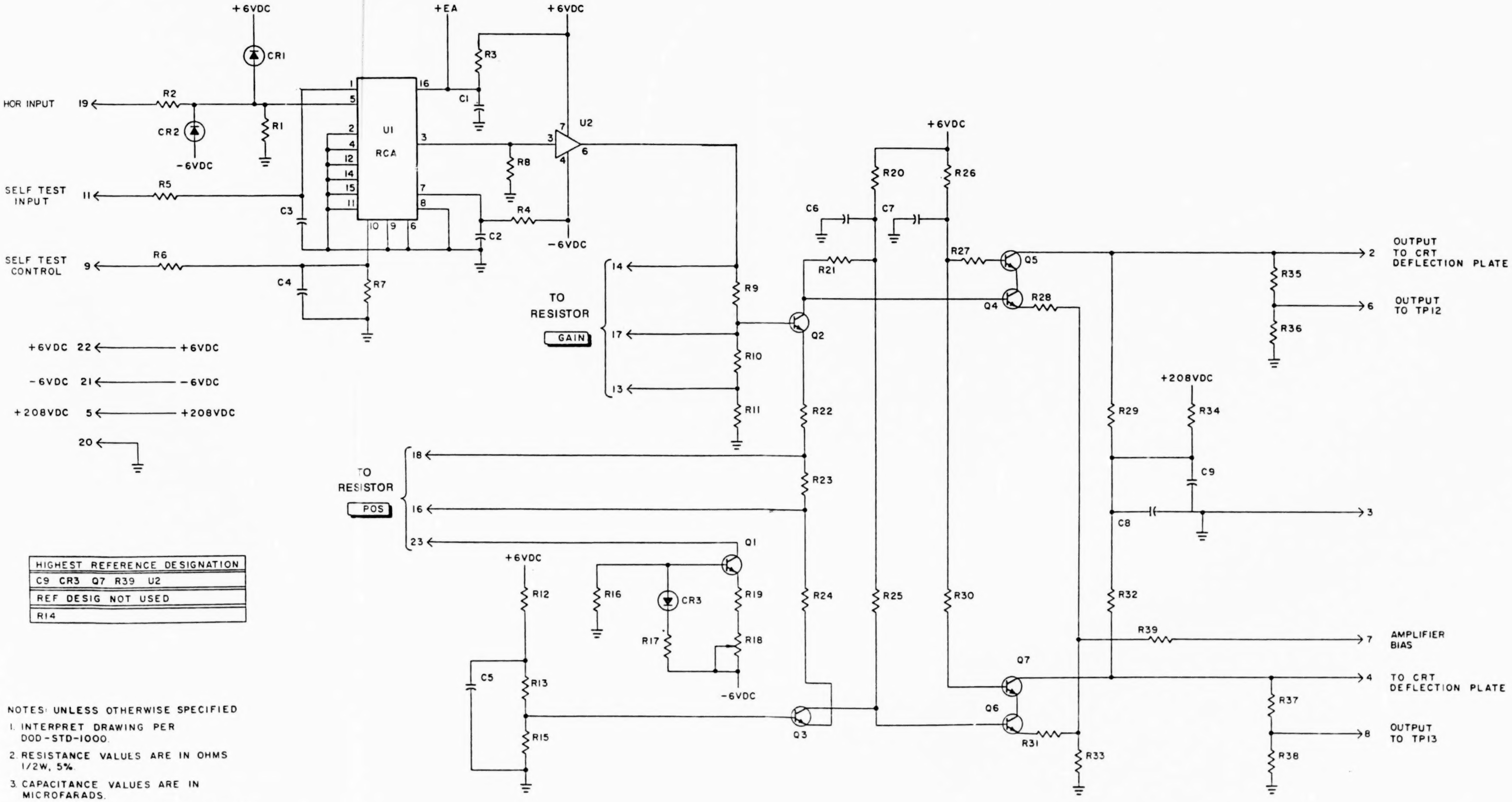


Figure FO-4. Z-Axis Amplifier, Test, and Regulator CCA A1



HIGHEST REFERENCE DESIGNATION
C9 CR3 Q7 R39 U2
REF DESIG NOT USED
R14

NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DRAWING PER DOD-STD-1000.
2. RESISTANCE VALUES ARE IN OHMS 1/2W, 5%.
3. CAPACITANCE VALUES ARE IN MICROFARADS.
4. SEMI-CONDUCTOR DISCRETE DEVICES ARE PREFIXED BY "JANTX".
5. ▭ DENOTES FRONT PANEL MARKING.

Figure FO-5. Vertical Amplifier Board A2 and Horizontal Amplifier Board A3 Schematic Diagram

HIGHEST REFERENCE DESIGNATION
C11 CR3 Q2 R20 U1

REFERENCE DESIGNATION NOT USED
C10 R15 R17

NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DRAWING PER DOD-D-1000.
2. RESISTANCE VALUES ARE IN OHMS. 1/4W, 5%.
3. CAPACITANCE VALUES ARE IN MICROFARADS.
4. SEMI-CONDUCTOR DISCRETE DEVICES ARE PREFIXED BY JANTX.

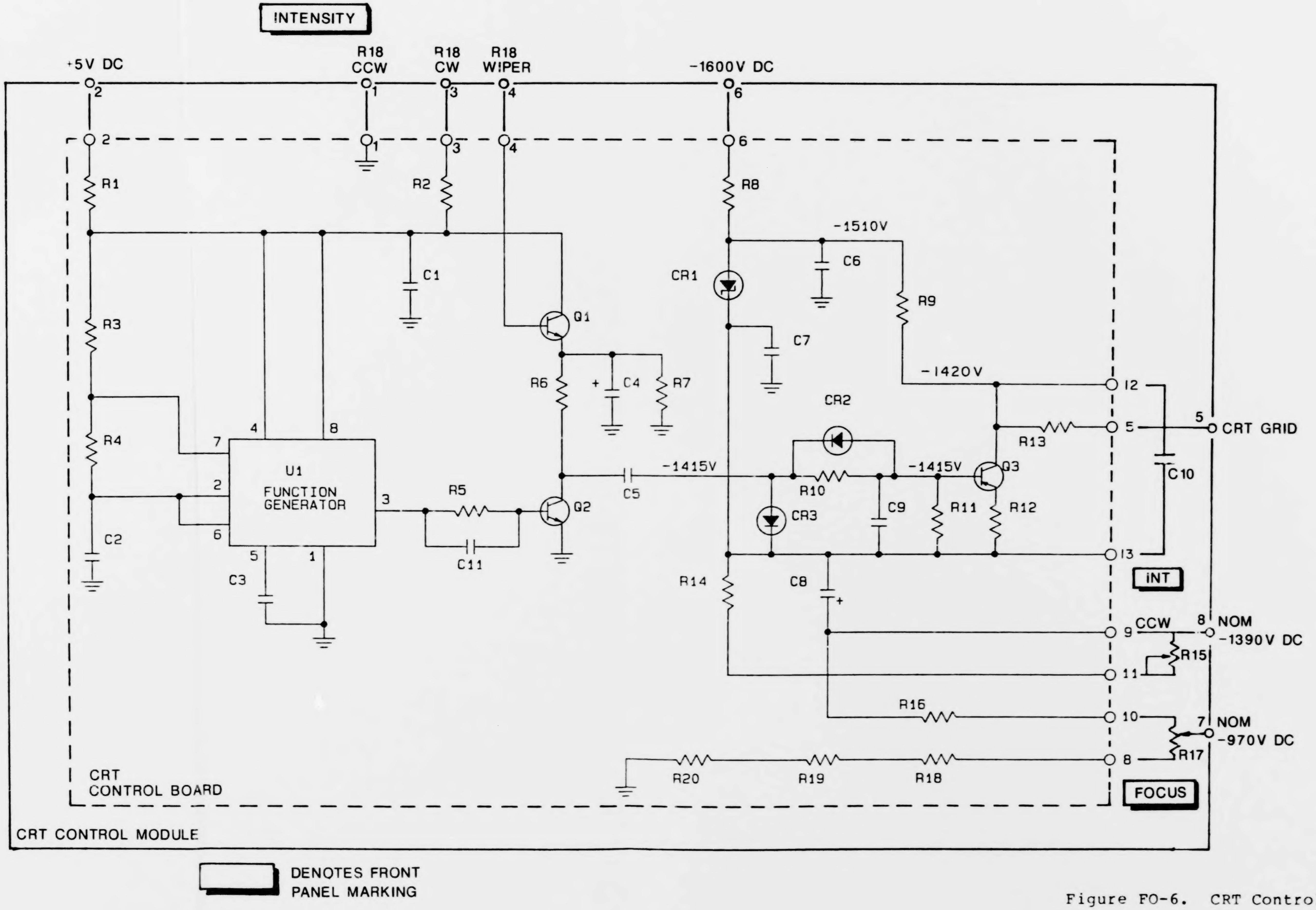


Figure FO-6. CRT Control Module U2 Schematic Diagram

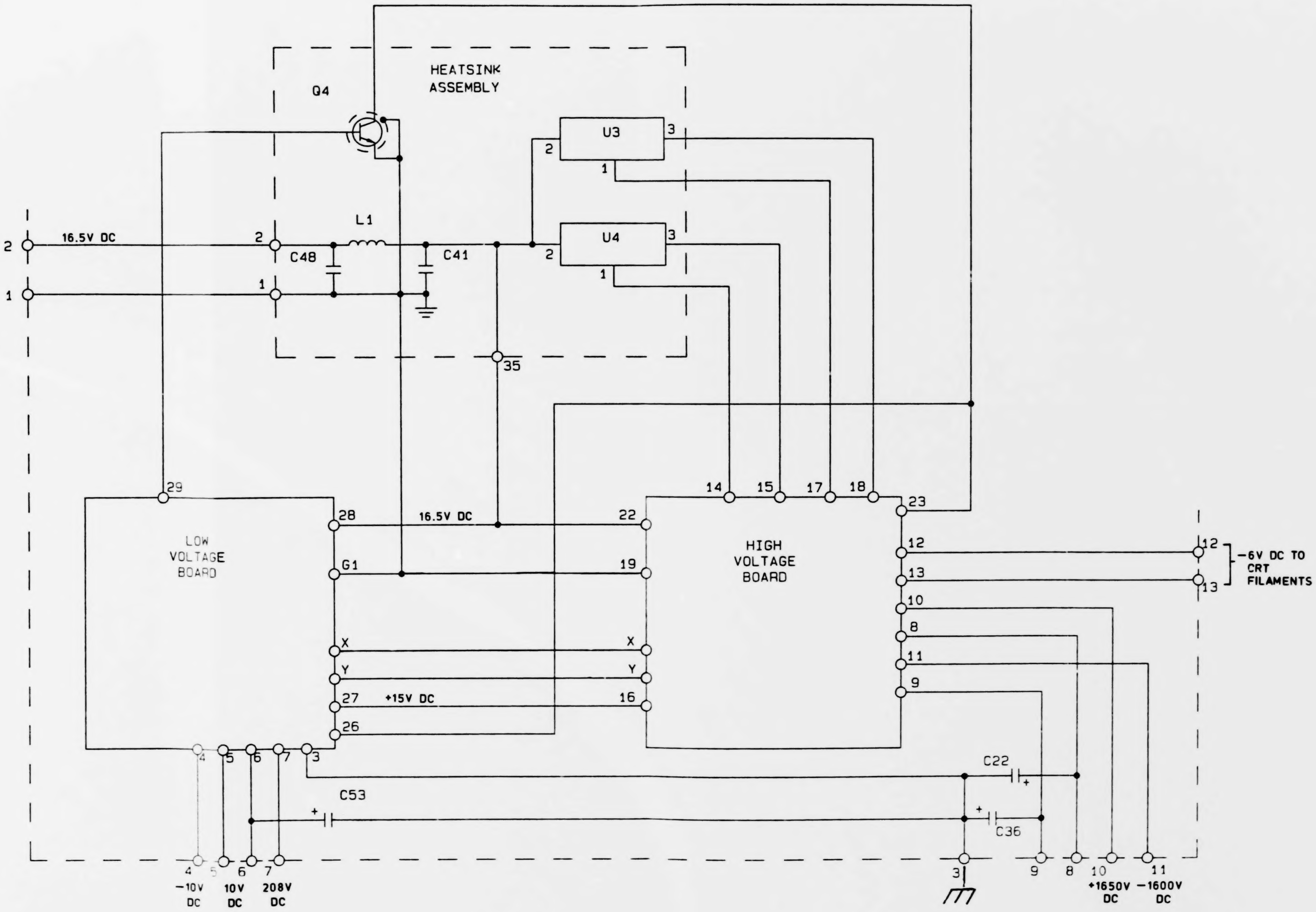


Figure FO-7. DC-DC Converter U1 Schematic Diagram (Sheet 1 of 3)

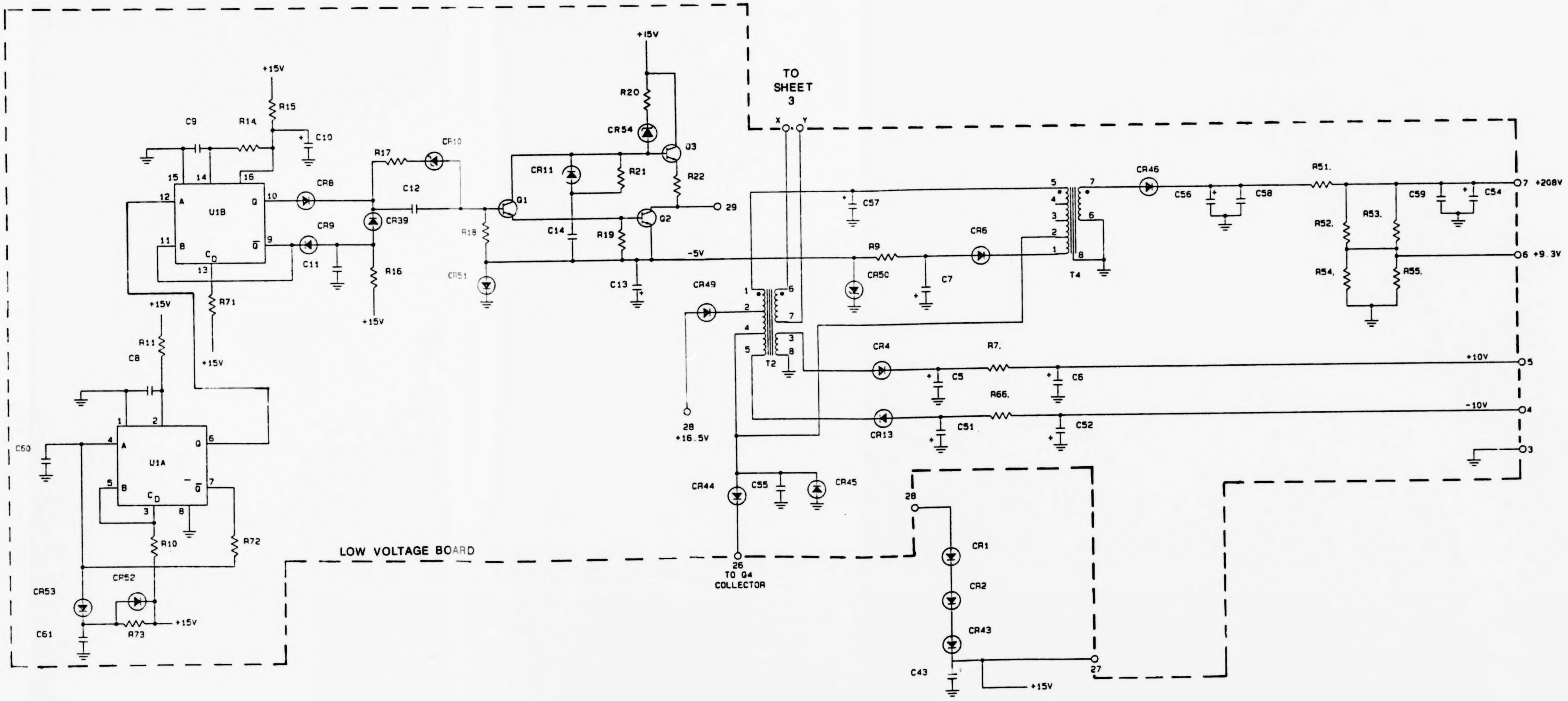


Figure FO-7. DC-DC Converter U1 Schematic Diagram (Sheet 2 of 3)

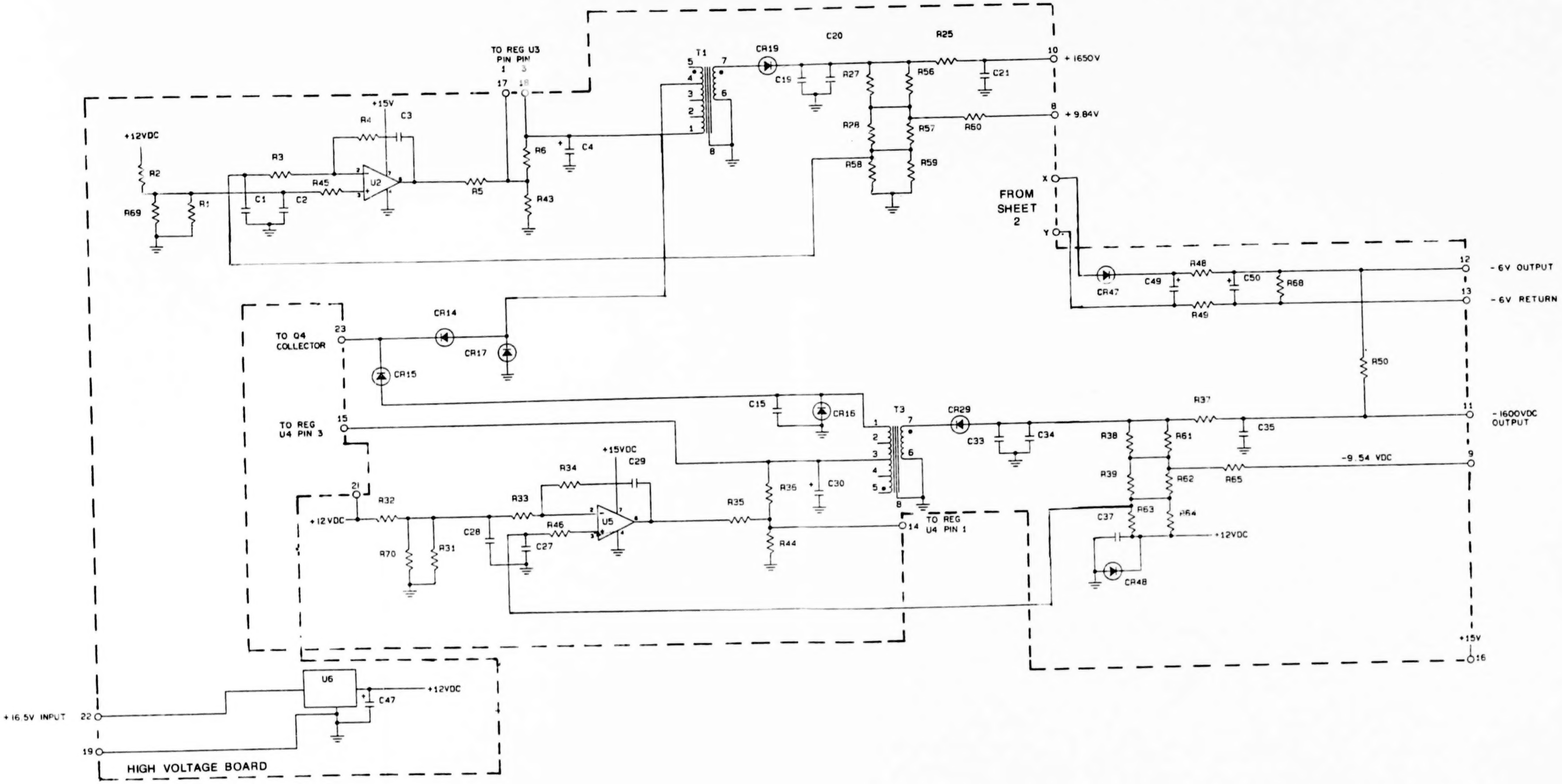
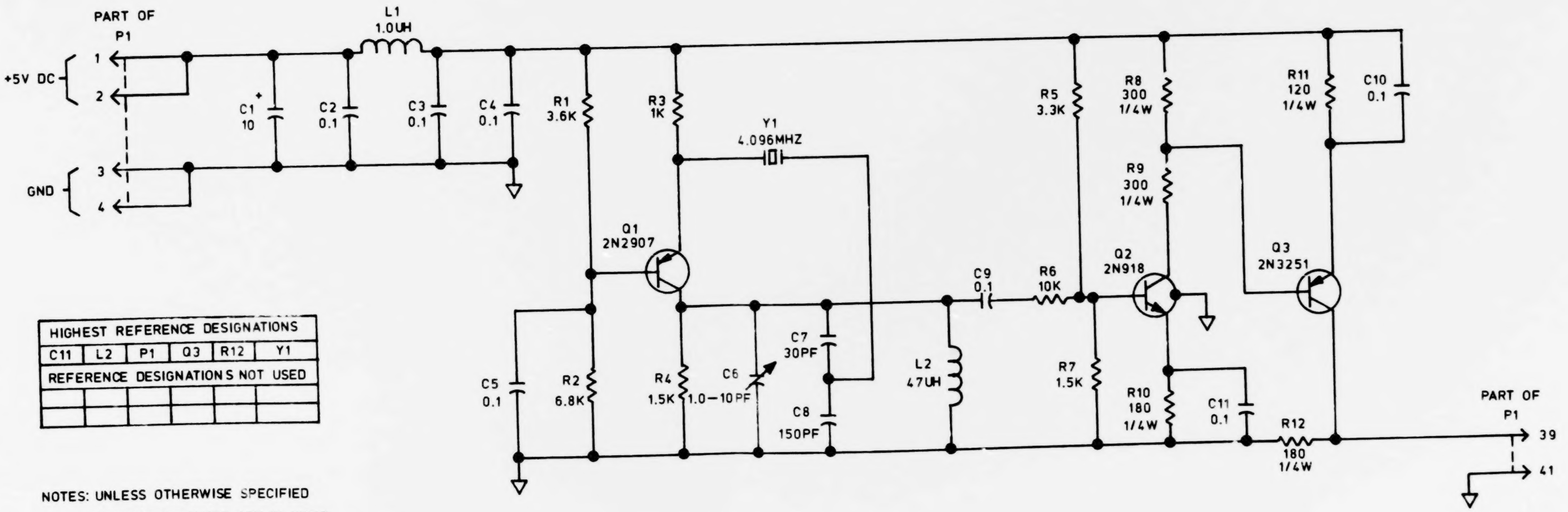


Figure FO-7. DC-DC Converter U1 Schematic Diagram (Sheet 3 of 3)

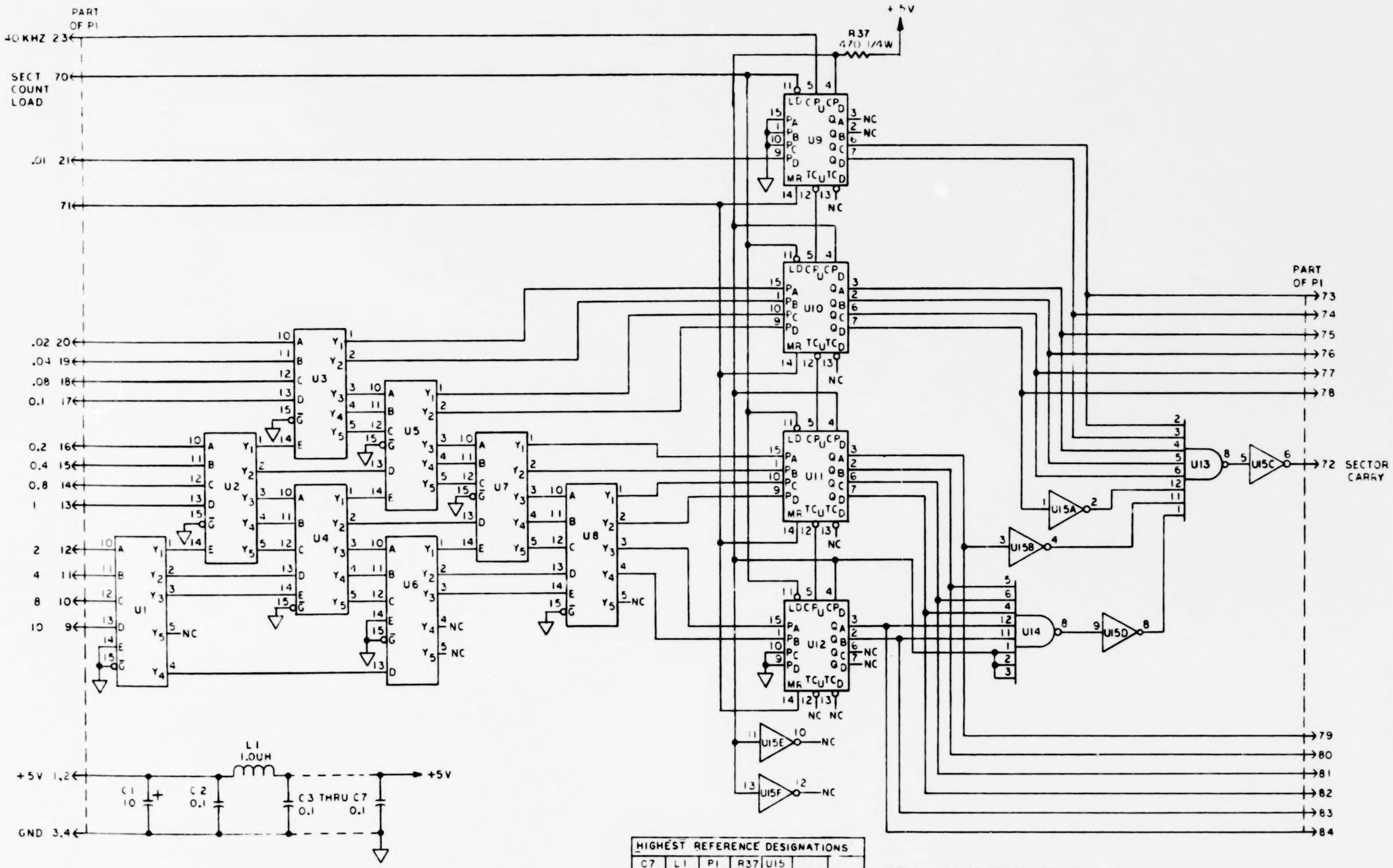


HIGHEST REFERENCE DESIGNATIONS					
C11	L2	P1	Q3	R12	Y1
REFERENCE DESIGNATIONS NOT USED					

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.

Figure FO-8. Circuit Clock CCA A1 Schematic Diagram



PULL UP RESISTOR LOCATIONS (4.7K TO +5V)		
IC NO.	PIN NO.	RESISTOR NO.
U1	1	R6
	2	R3
	3	R4
	4	R5
U2	1	R11
	2	R10
	3	R9
	4	R8
	5	R7
U3	1	R22
	2	R21
	3	R20
	4	R19
	5	R18
U4	1	R1
	2	R2
	3	R17
	4	R16
	5	R15
U5	1	R28
	2	R29
	3	R30
	4	R31
	5	R32
U6	1	R12
	2	R13
	3	R14
U7	1	R23
	2	R24
	3	R25
	4	R26
	5	R27
U8	1	R36
	2	R35
	3	R34
	4	R33

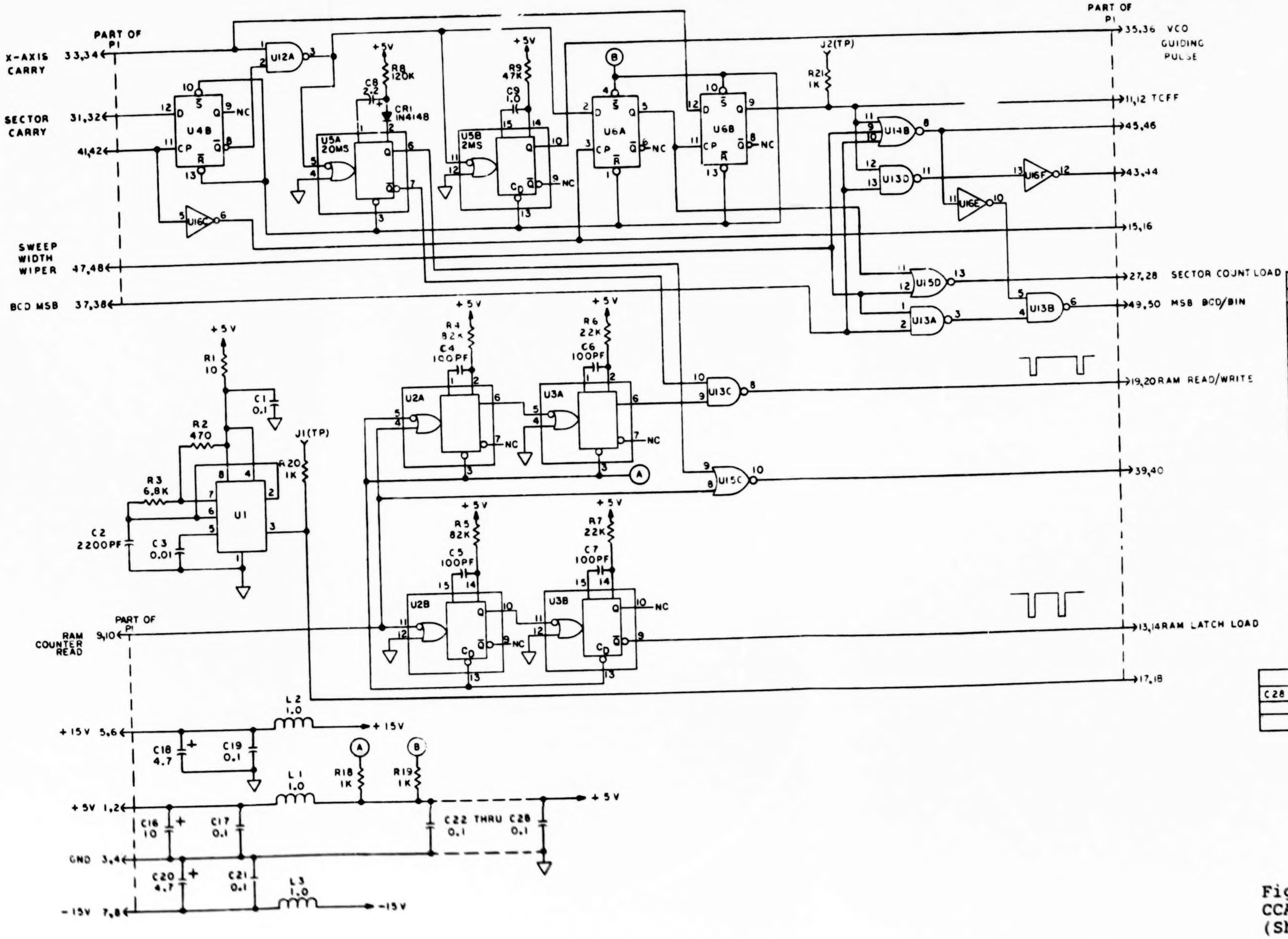
HIGHEST REFERENCE DESIGNATIONS						
C7	L1	P1	R37	U15		
REFERENCE DESIGNATIONS NOT USED						

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5 %, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.

MICROCIRCUIT IDENT			
REF DES.	TYPE	VCC	GND
U1-U8	54184	16	8
U9-U12	54L193	16	8
U13,14	54L30	14	7
U15	54L04	14	7

Figure FO-9. Sweep Address CCA A2 Schematic Diagram



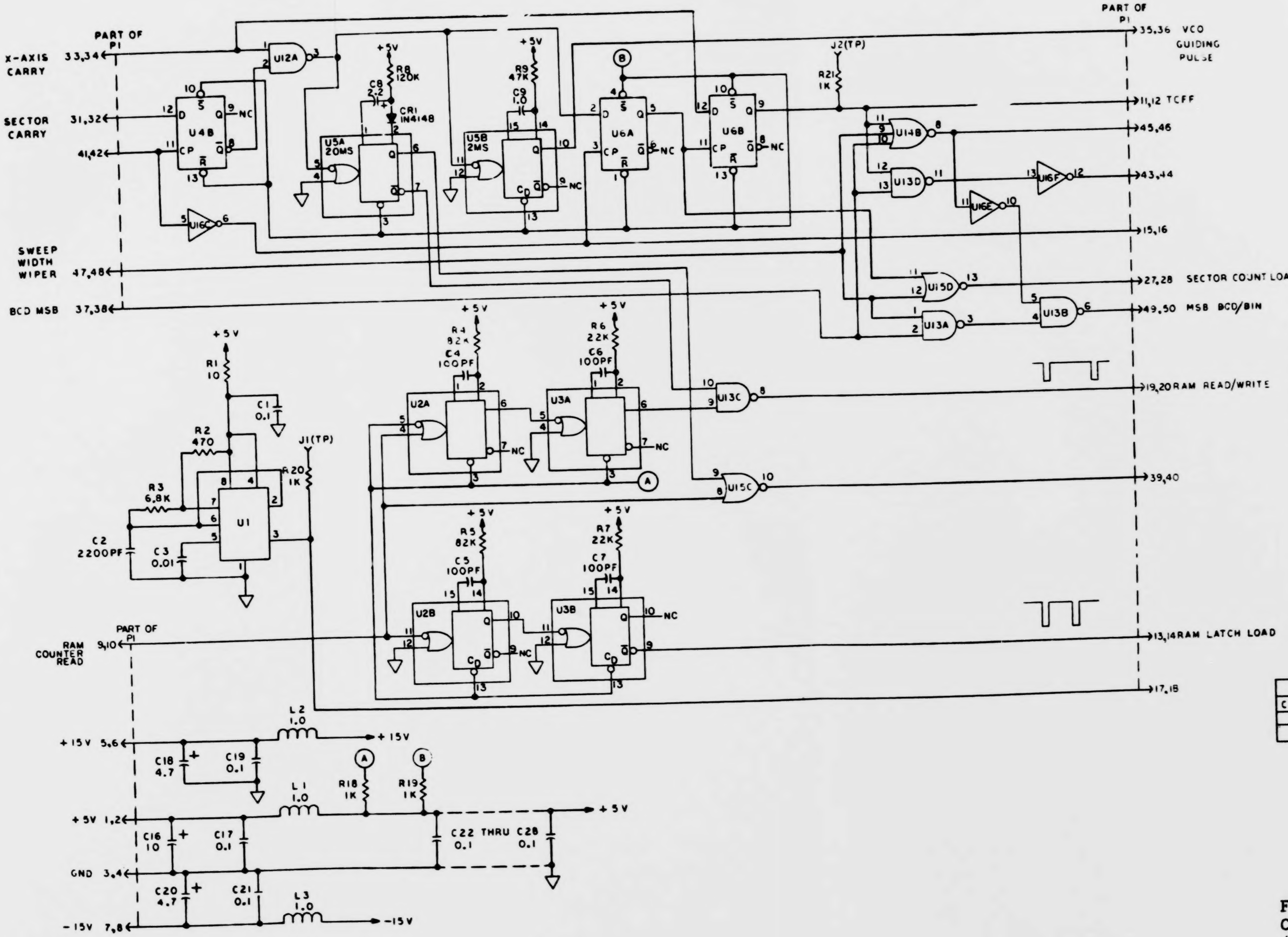
MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+ V	− V
U1	LM555	8	1	−	−
U2,3,5,8,9	96L02	16	8	—	—
U4,6	54L74	14	7	—	—
U7	HPROM-1024	16	8	−	−
U10	LH0002	—	—	1,2	6,7
U11,15	54L02	14	7	—	
U12,13	54L00	14	7	—	
U14	5427	14	7	—	—
U16	54L04	14	7	—	—

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5 %, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED
4. INDUCTANCE VALUES ARE UH.

HIGHEST REFERENCE DESIGNATIONS								
C28	CR1	J3	L3	P1	R22	U16		
REFERENCE DESIGNATIONS NOT USED								

Figure FO-10. Timing Controller CCA A3 Schematic Diagram (Sheet 1 of 2)



MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+ V	− V
U1	LM555	8	1	–	–
U2,3,5,8,9	96L02	16	8	—	—
U4,6	54L74	14	7	—	—
U7	HPROM-1024	16	8	–	–
U10	LH0002	—	—	1,2	6,7
U11,15	54L02	14	7	—	
U12,13	54L00	14	7	—	
U14	5427	14	7	—	—
U16	54L04	14	7	—	—

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5 %, ¼ WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED

4. INDUCTANCE VALUES ARE UH.

HIGHEST REFERENCE DESIGNATIONS								
C28	CR1	J3	L3	P1	R22	U16		
REFERENCE DESIGNATIONS NOT USED								

Figure FO-10. Timing Controller CCA A3 Schematic Diagram (Sheet 1 of 2)

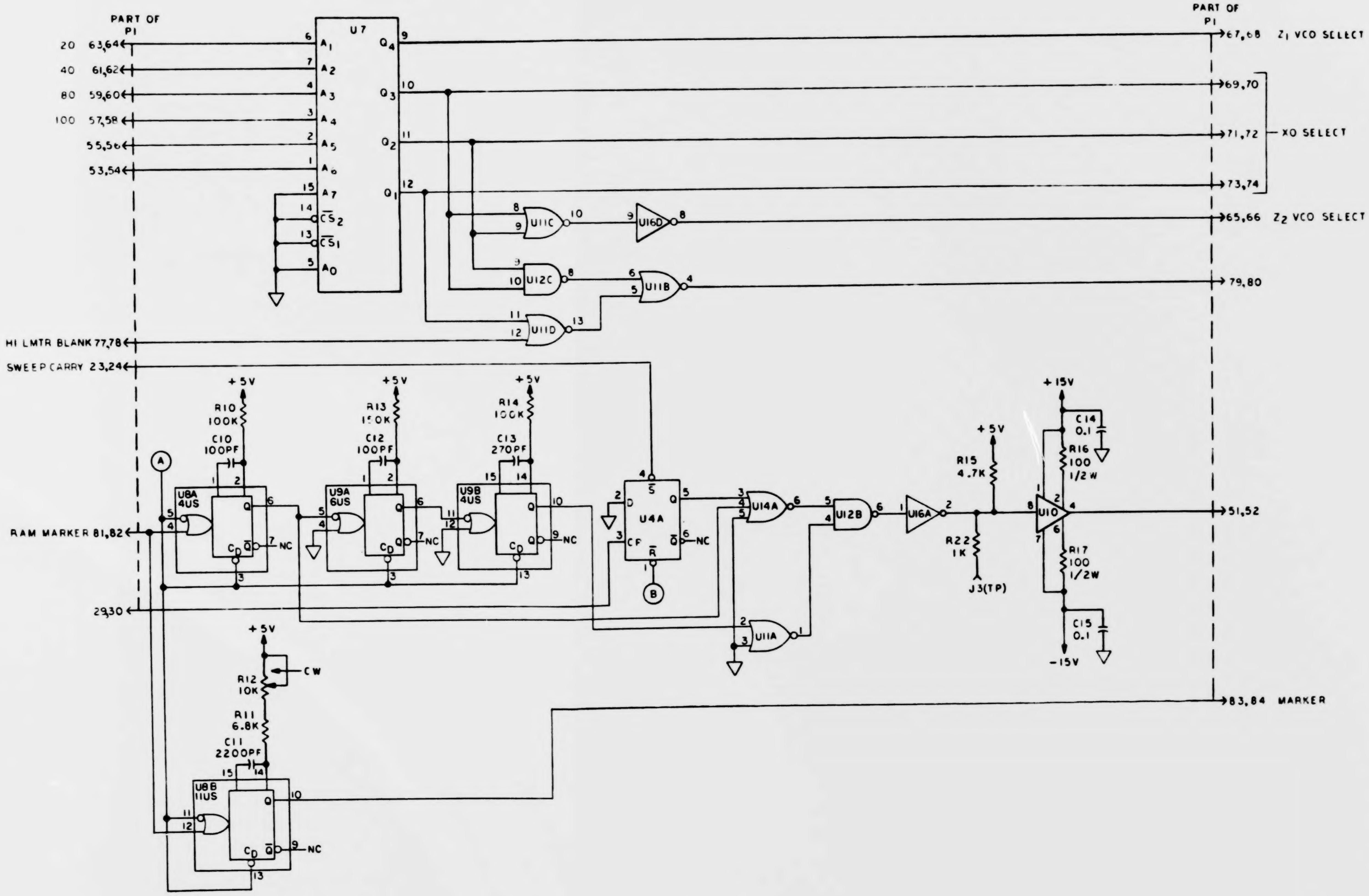


Figure FO-10. Timing Controller
CCA A3 Schematic Diagram
(Sheet 2 of 2)

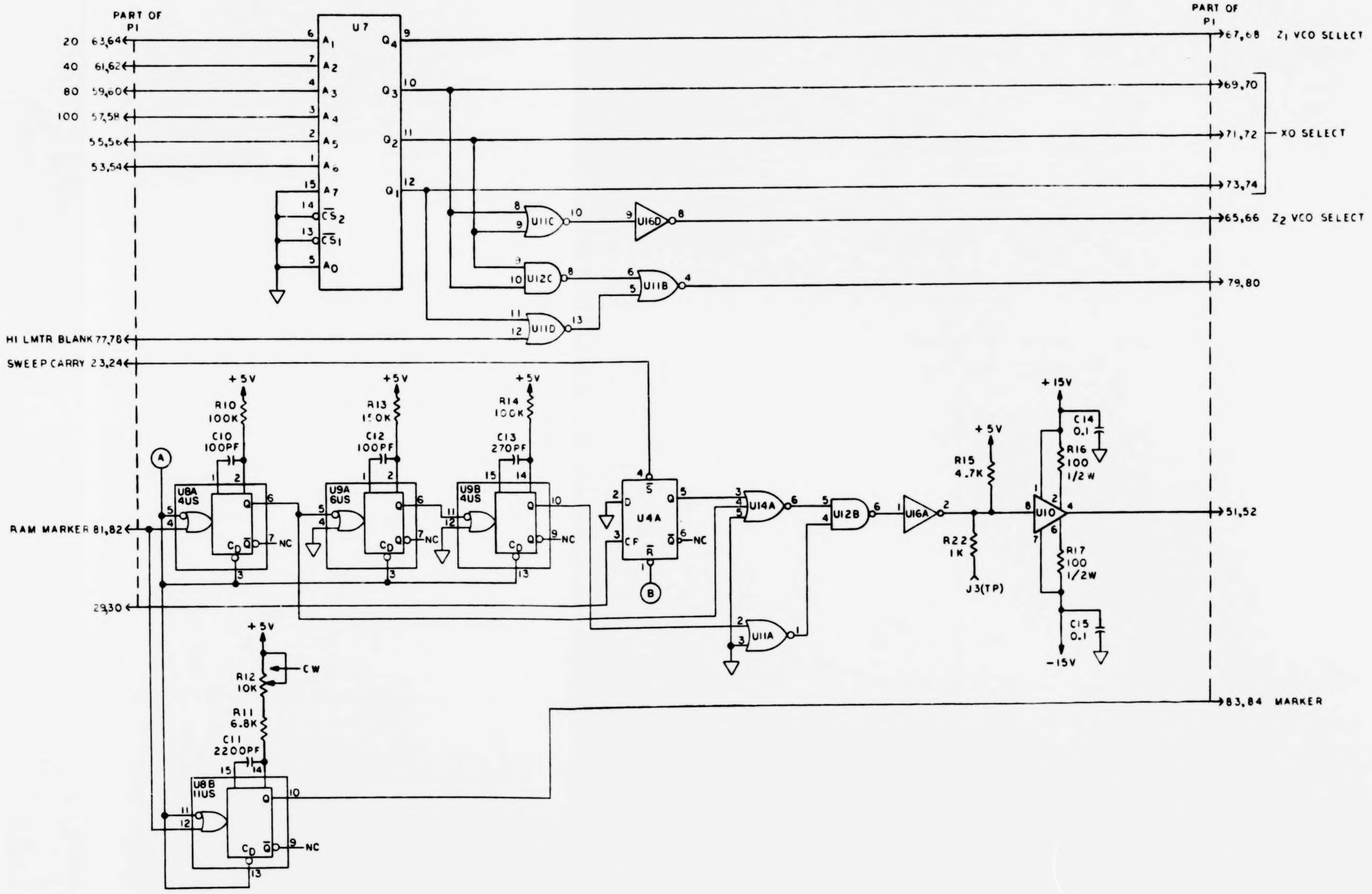
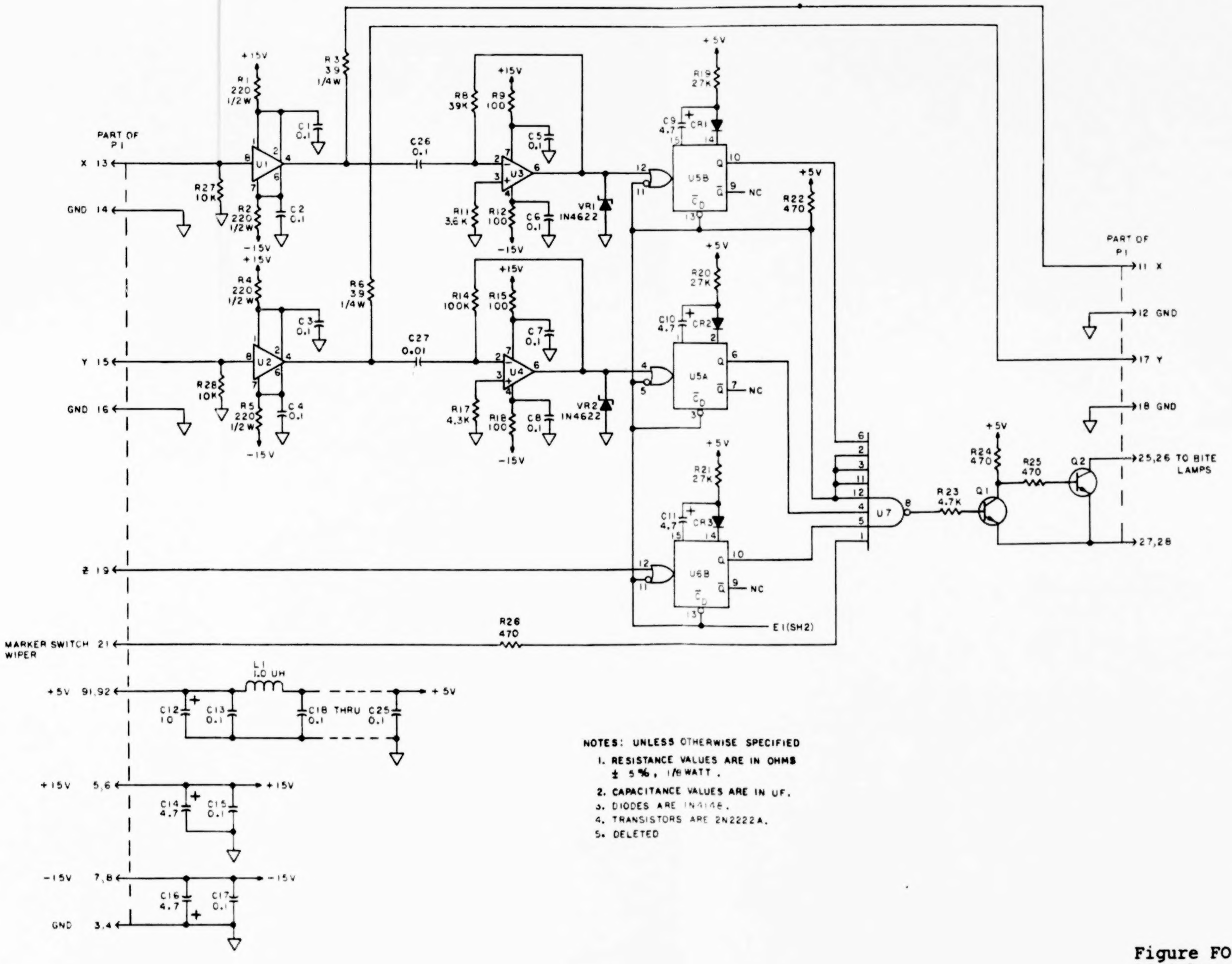


Figure FO-10. Timing Controller CCA A3 Schematic Diagram (Sheet 2 of 2)



NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DIODES ARE 1N4148.
4. TRANSISTORS ARE 2N2222A.
5. DELETED

HIGHEST REFERENCE DESIGNATIONS							
C27	CR3	E1C		Q2	R26	U20	VR2
REFERENCE DESIGNATIONS NOT USED							
					R7		
					R10		
					R13		
					R16		

MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+ V	− V
U1,2	LH0002	—	—	1,2	6,7
U3,4	UA741	—	—	7	4
U5,6	96L02	16	8	—	—
U7,11,16	54L30	14	7	—	—
U8,9,10,	54L193	16	8	—	—
U12-15	54L193	16	8	—	—
U17	54L74	14	7	—	—
U18	54L10	14	7	—	—
U19,20	54L04	14	7	—	—

Figure FO-11. Memory Address CCA
A4 Schematic Diagram
(Sheet 1 of 2)

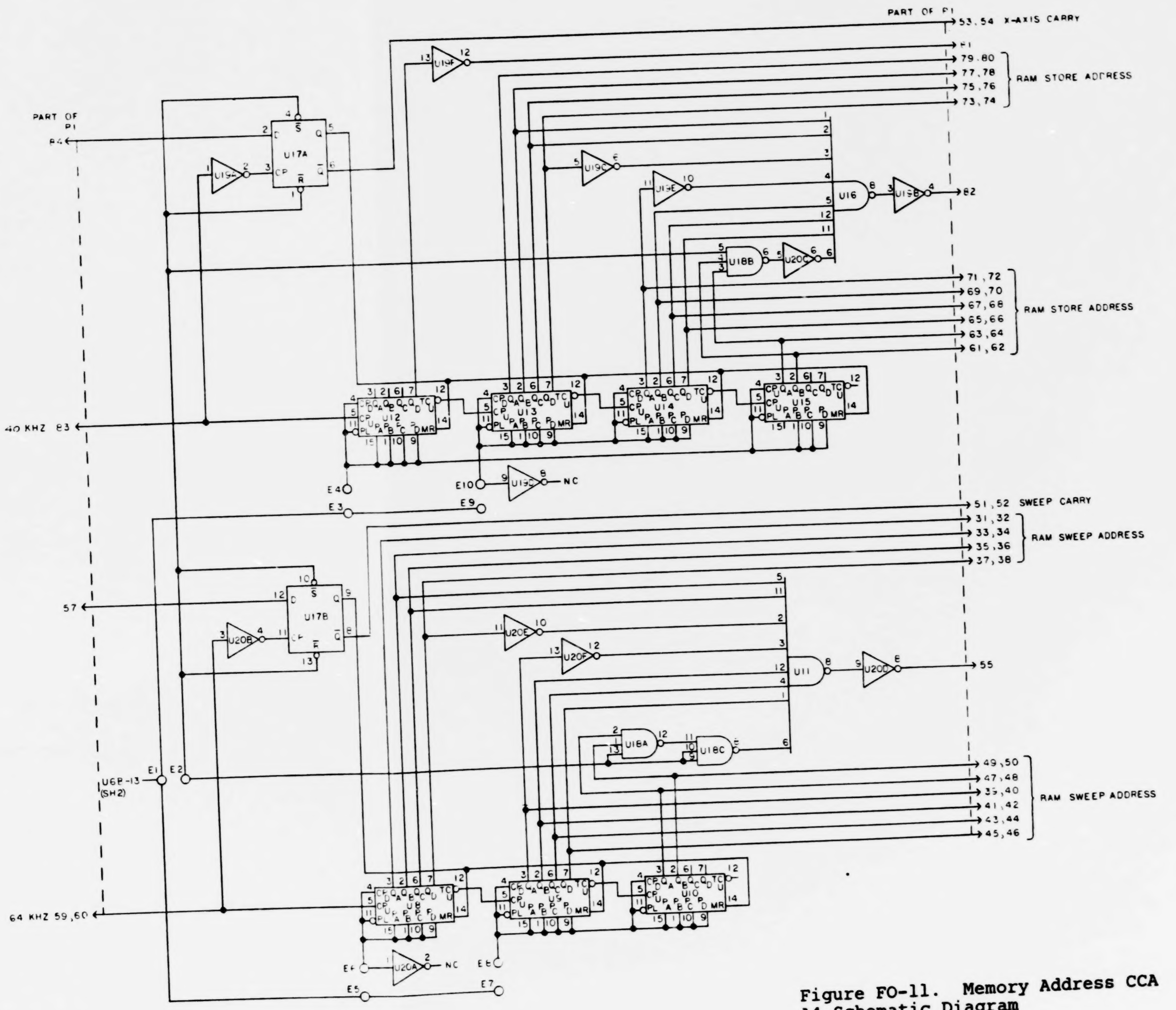
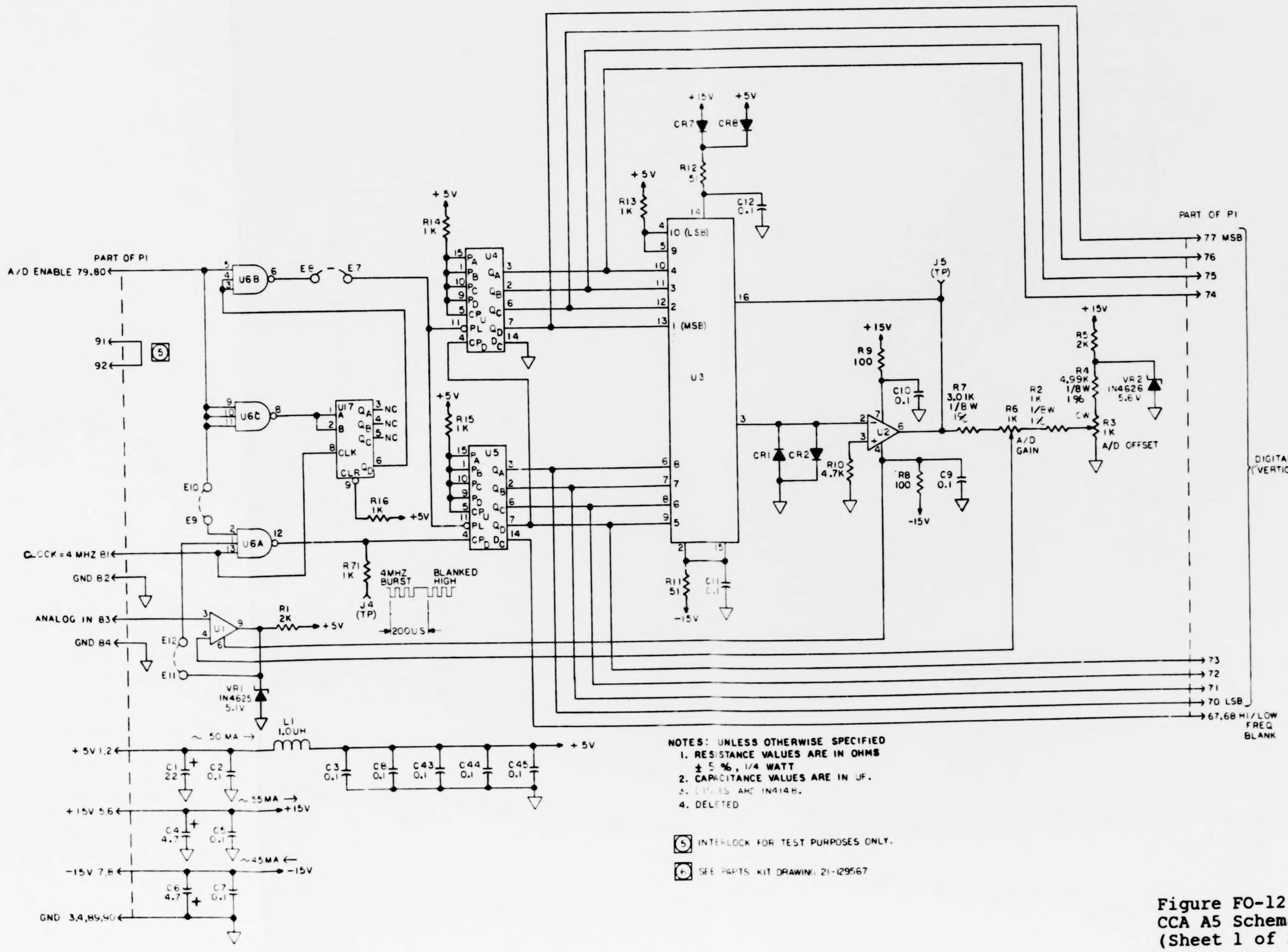


Figure FO-11. Memory Address CCA A4 Schematic Diagram (Sheet 2 of 2)



NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTANCE VALUES ARE IN OHMS ± 5 %, 1/4 WATT
2. CAPACITANCE VALUES ARE IN UF.
3. DIODES ARE 1N4148.
4. DELETED

⑤ INTERLOCK FOR TEST PURPOSES ONLY.

⑥ SEE PARTS KIT DRAWING 21-129567

MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+ V	− V
U1	LM111D	11	2	—	6
U2,8,15	LM741	—	—	7	4
U16,20	LM741	—	—	7	4
U3,7,11	DAC 100	—	—	14	2
U4,5	54193	16	8	—	—
U6	54L10	14	7	—	—
U9,10	54L04	14	7	—	—
U12,13	MC1741S	—	—	7	4
U14	AH0014D	14	3	4	11
U17	54164	14	7	—	—
U18,19	HA2420	—	13	9	5

HIGHEST REFERENCE DESIGNATIONS							
C46	CR13	E12	J5	L1	R71	U20	VR5
REFERENCE DESIGNATIONS NOT USED							

RANGES ON R3, R6 (R4F SET FOR MAX SIGNAL OF .8 V)			
R3	R6	ANLG IN (VDC)	Y-AXIS OUT (VDC)
CW	CW	0 3.3	0.05 0.8
CW	CCW	0 1.6	0.05 0.8
CCW	CW	0.3 3.6	0 0.61
CCW	CCW	0.5 3.2	0 0.8

Figure FO-12. Memory I/O Buffer CCA A5 Schematic Diagram (Sheet 1 of 3)

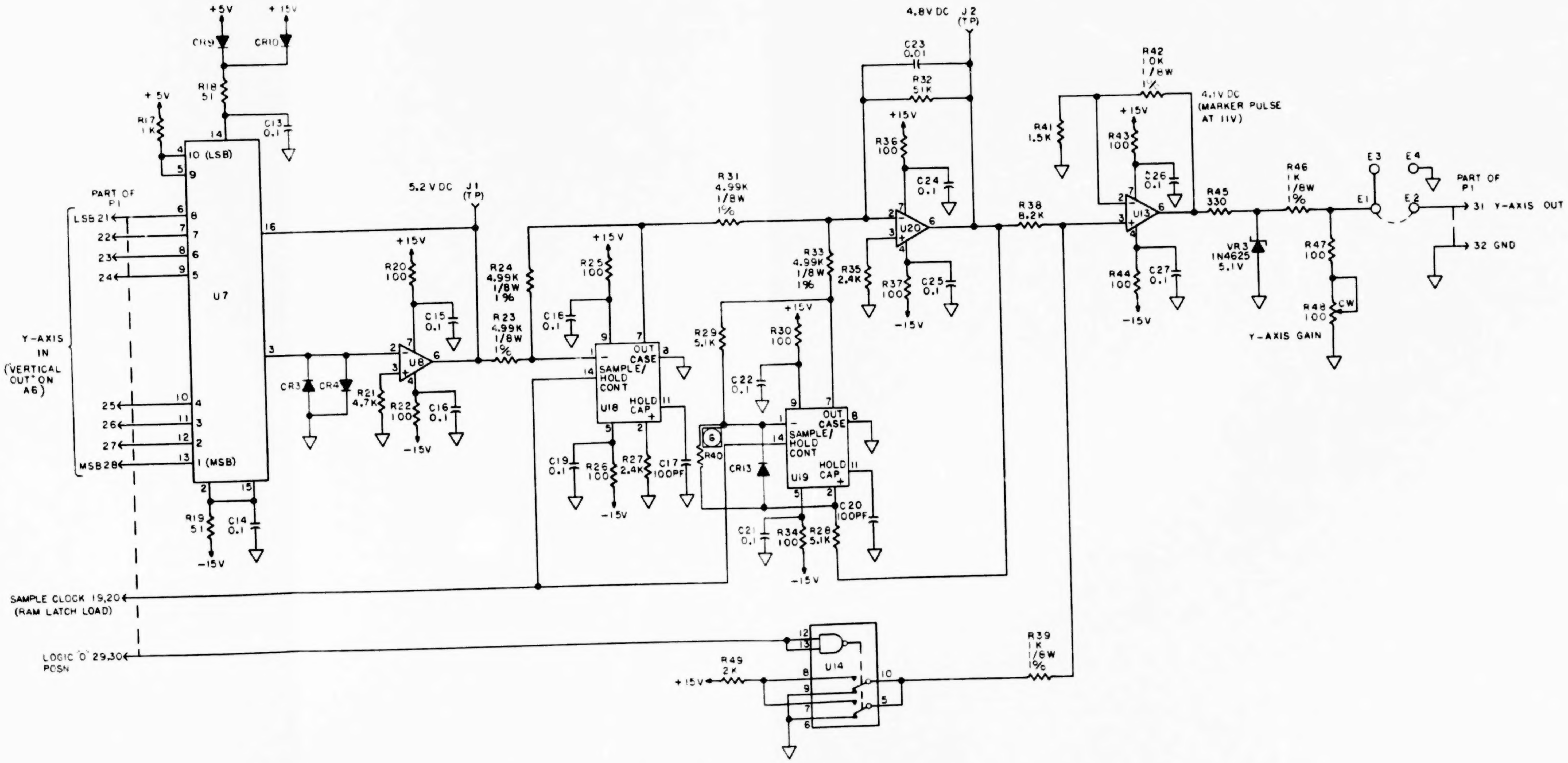


Figure FO-12. Memory I/O Buffer CCA A5 Schematic Diagram (Sheet 2 of 3)

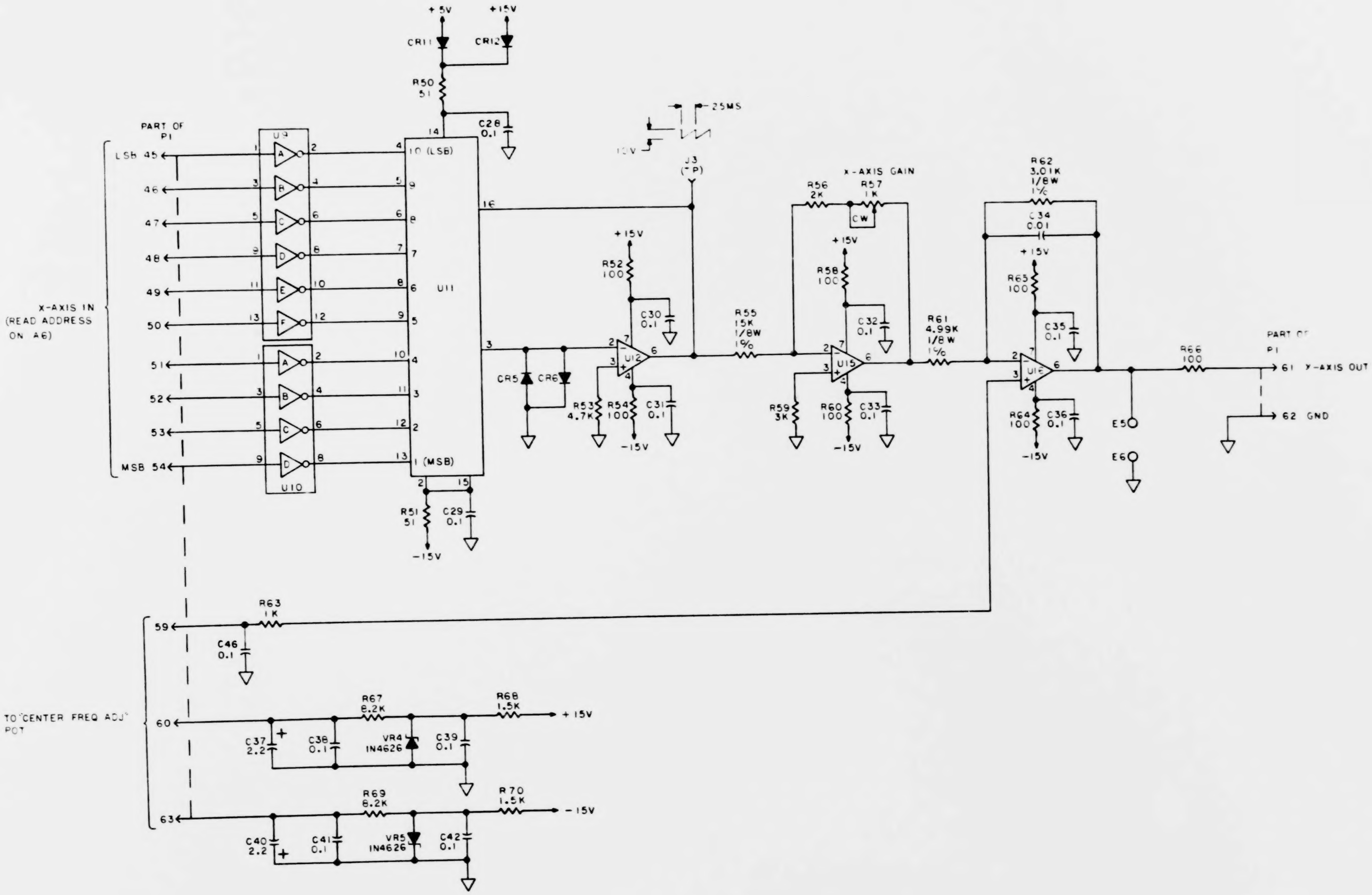


Figure FO-12. Memory I/O Buffer CCA A5 Schematic Diagram (Sheet 3 of 3)

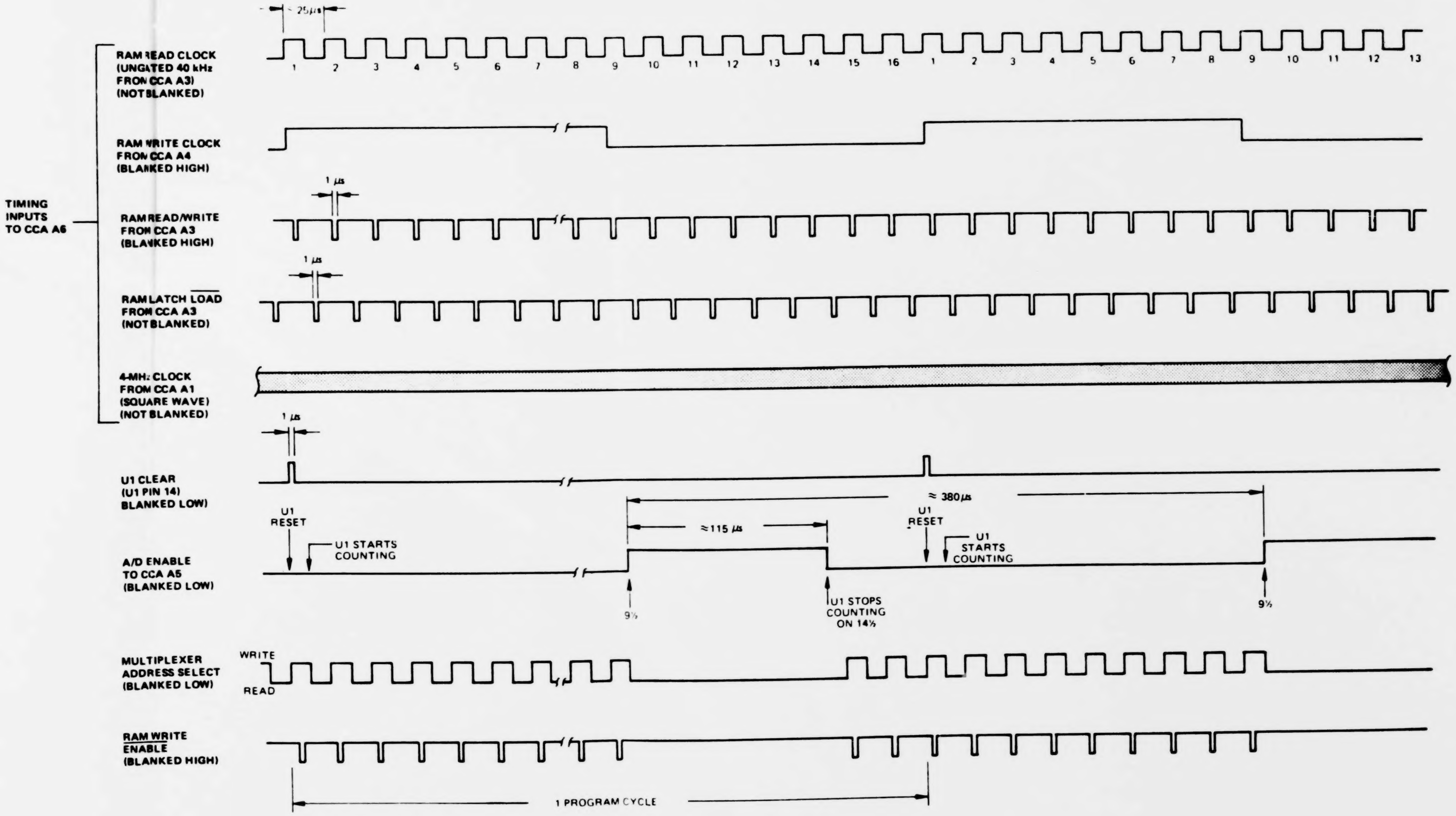
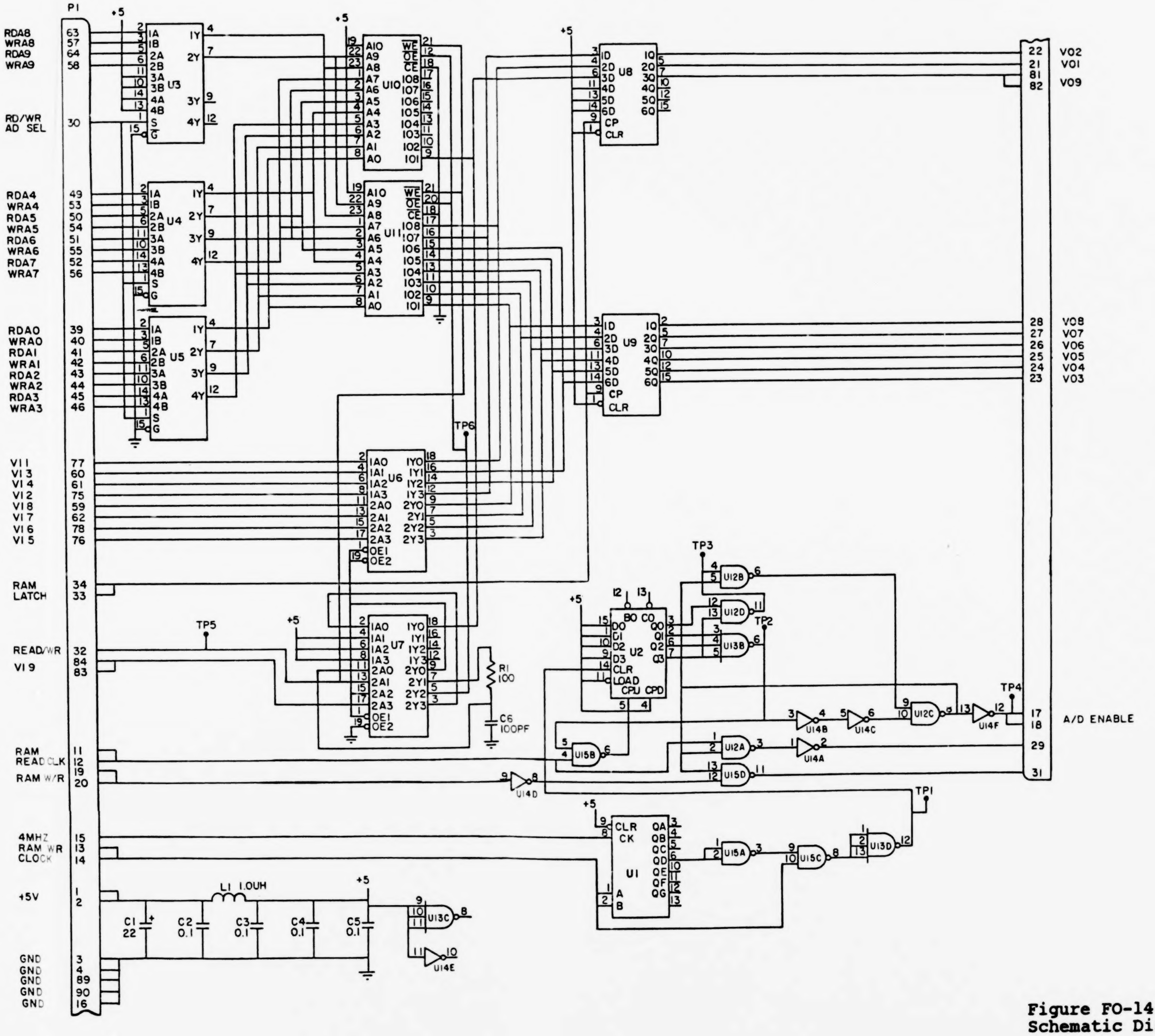

~ 25 μs
RAM READ CLOCK (UNGATED 40 kHz FROM CCA A3) (NOT BLANKED)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
1
2
3
4
5
6
7
8
9
10
11
12
13
RAM WRITE CLOCK FROM CCA A4 (BLANKED HIGH)
TIMING INPUTS TO CCA A6
1 μs
RAM READ/WRITE FROM CCA A3 (BLANKED HIGH)
1 μs
RAM LATCH LOAD FROM CCA A3 (NOT BLANKED)
4-MHz CLOCK FROM CCA A1 (SQUARE WAVE) (NOT BLANKED)
1 μs
U1 CLEAR (U1 PIN 14) BLANKED LOW)
≈ 380 μs
U1 RESET
≈ 115 μs
U1 RESET
U1 STARTS COUNTING
U1 STARTS COUNTING
A/D ENABLE TO CCA A5 (BLANKED LOW)
9½
U1 STOPS COUNTING ON 14½
9½
MULTIPLEXER ADDRESS SELECT (BLANKED LOW)
WRITE
READ
RAM WRITE ENABLE (BLANKED HIGH)
1 PROGRAM CYCLE

Figure FO-13. Memory CCA A6 Timing Diagram



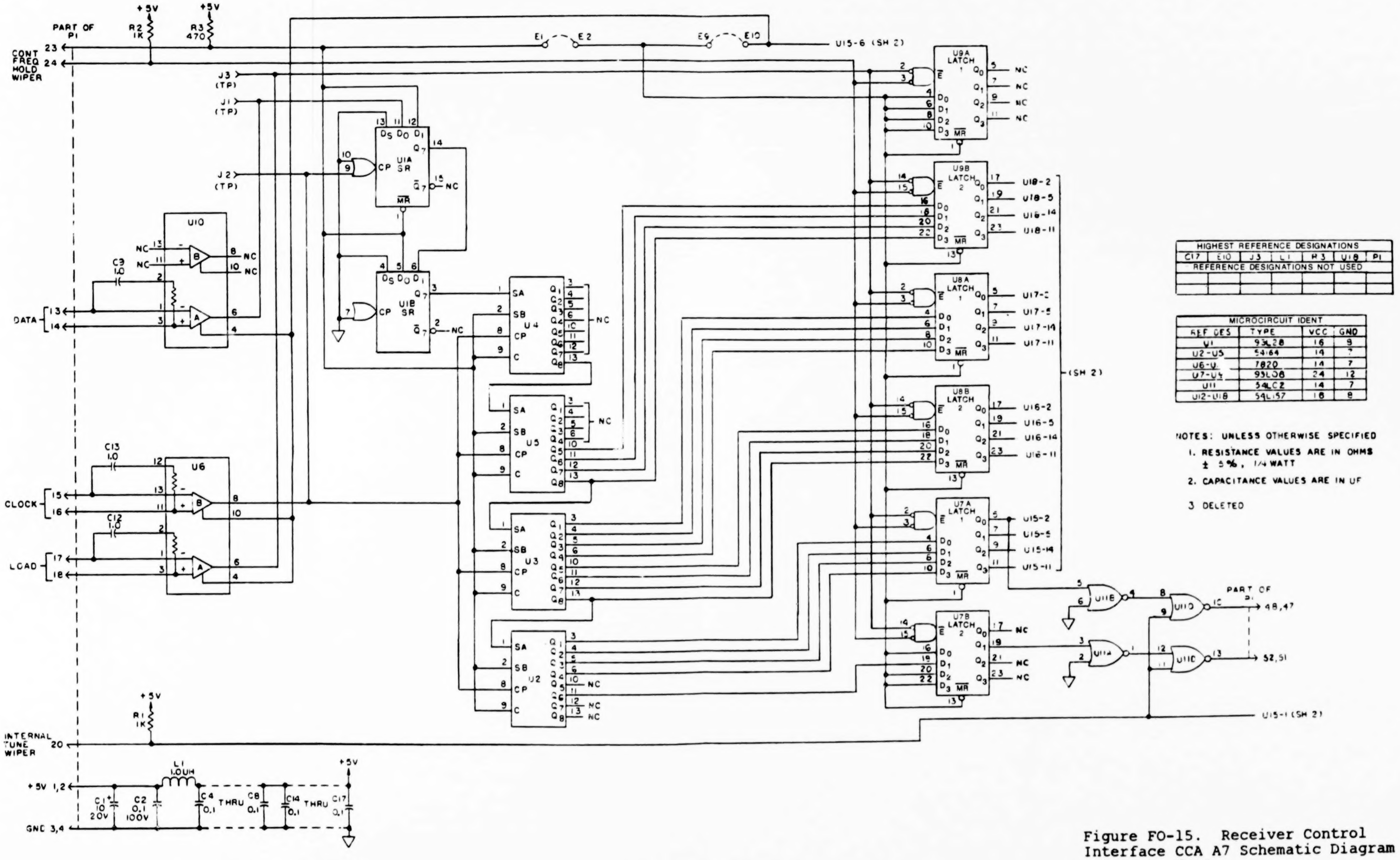
R1	
C6	
TP 6	
L1	
P1	
U 15	
LAST USED	NOT USED

REF DES	TYPE	+5	GND
U12,15	LS00	14	7
U14	LS04	14	7
U13	LS10	14	7
U3-5	LS157	16	8
U1	LS164	16	8
U8,9	LS174	16	8
U2	LS193	16	8
U7	LS240	20	10
U6	LS244	20	10
U10,11	AM9128	24	12

NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DRAWING PER DOD-D-1000.
2. RESISTANCE VALUES ARE IN OHMS, 1/8W, 5%.
3. CAPACITANCE VALUE ARE IN MICROFARADS.

Figure FO-14. Memory CCA A6 Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS						
C17	E10	J3	L1	R3	U18	P1
REFERENCE DESIGNATIONS NOT USED						

MICROCIRCUIT IDENT			
REF DES	TYPE	VCC	GND
U1	93L28	16	8
U2-U5	54164	14	7
U6-U	7820	14	7
U7-U9	93L08	24	12
U11	54LC2	14	7
U12-U18	54L157	16	8

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT
2. CAPACITANCE VALUES ARE IN UF
3. DELETED

Figure FO-15. Receiver Control Interface CCA A7 Schematic Diagram (Sheet 1 of 2)

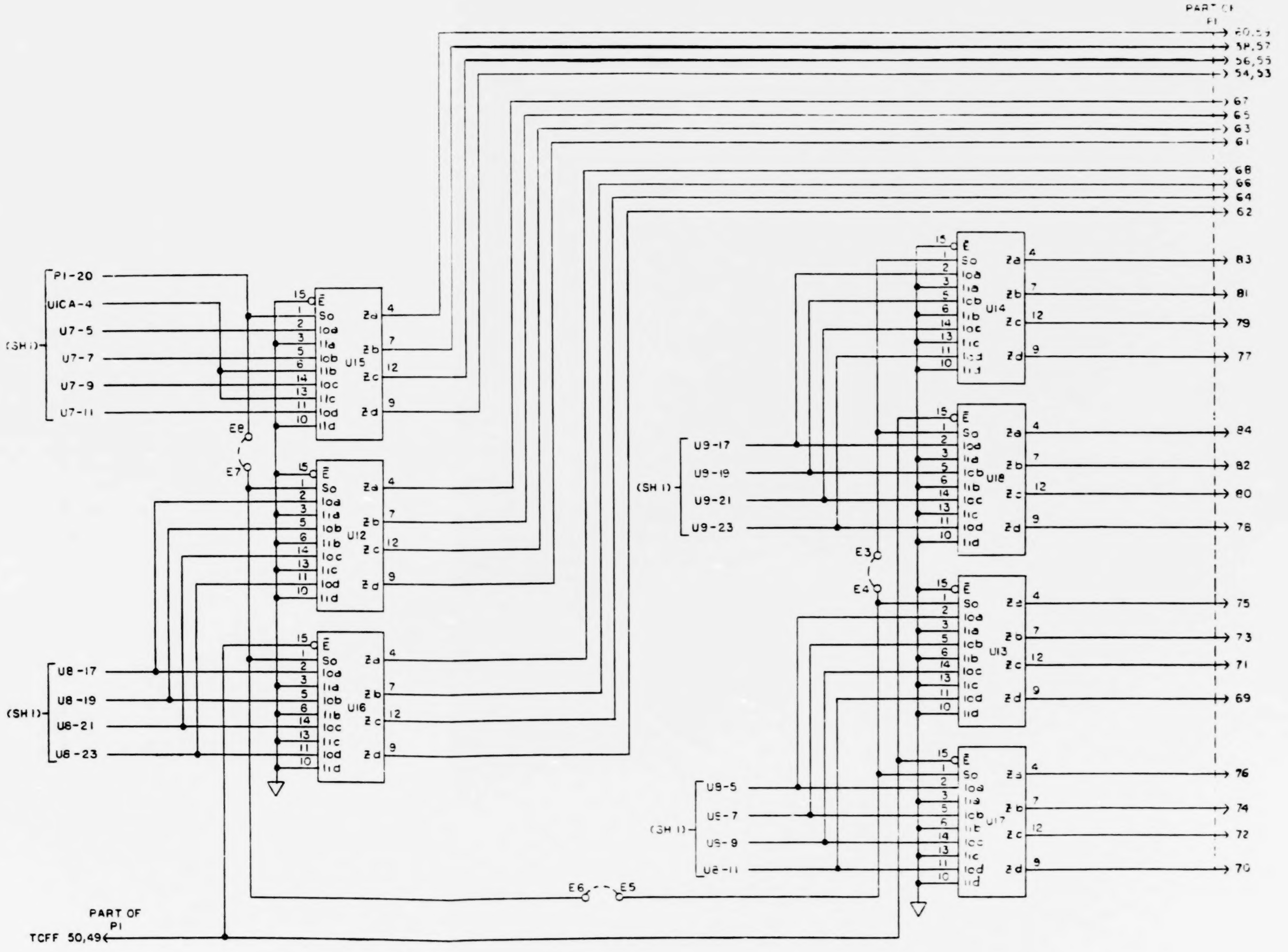
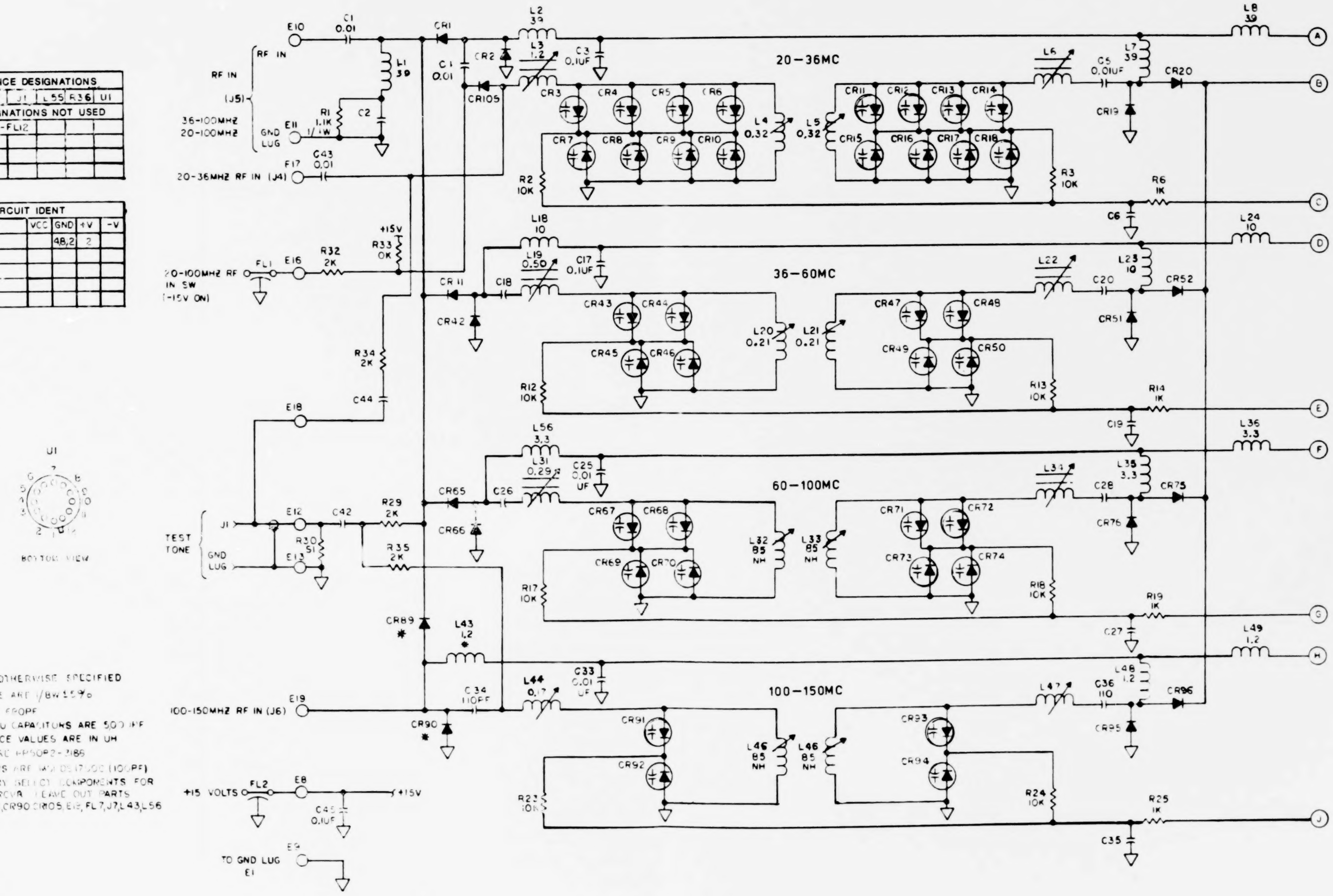


Figure FO-15. Receiver Control Interface CCA A7 Schematic Diagram (Sheet 2 of 2)

HIGHEST REFERENCE DESIGNATIONS							
C45	CR105	E19	FL17	J1	L55	R36	U1
REFERENCE DESIGNATIONS NOT USED							
			FL3-FL12				

MICROCIRCUIT IDENT					
NO.	TYPE	VCC	GND	+V	-V
U1	AH52		4B,2	2	



NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTORS ARE 1/8W ±5%
2. CAPS ARE [illegible]
3. FEED THRU CAPACITORS ARE 500 PF
4. INDUCTANCE VALUES ARE IN UH
5. DIODES ARE HP5082-3188
6. VARACTORS ARE [illegible] (100PF)
7. * FACTORY SELECT COMPONENTS FOR R902PB RCVR. LEAVE OUT PARTS C45, CR89, CR90, CR105, E18, FL7, J7, L43, L56 R35, U1

Figure FO-16. RF Preselector CCA A8A1 Schematic Diagram (Sheet 1 of 2)

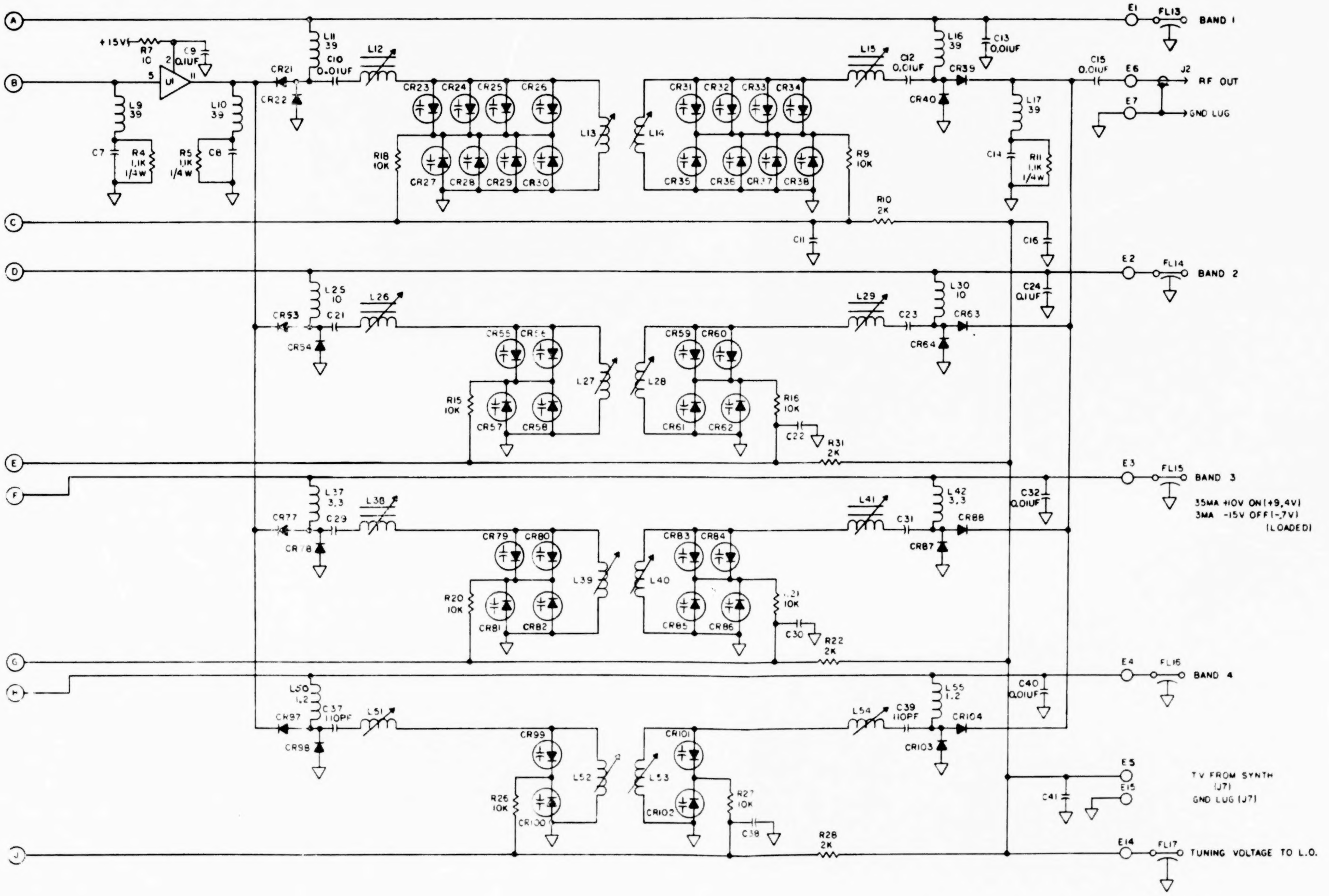
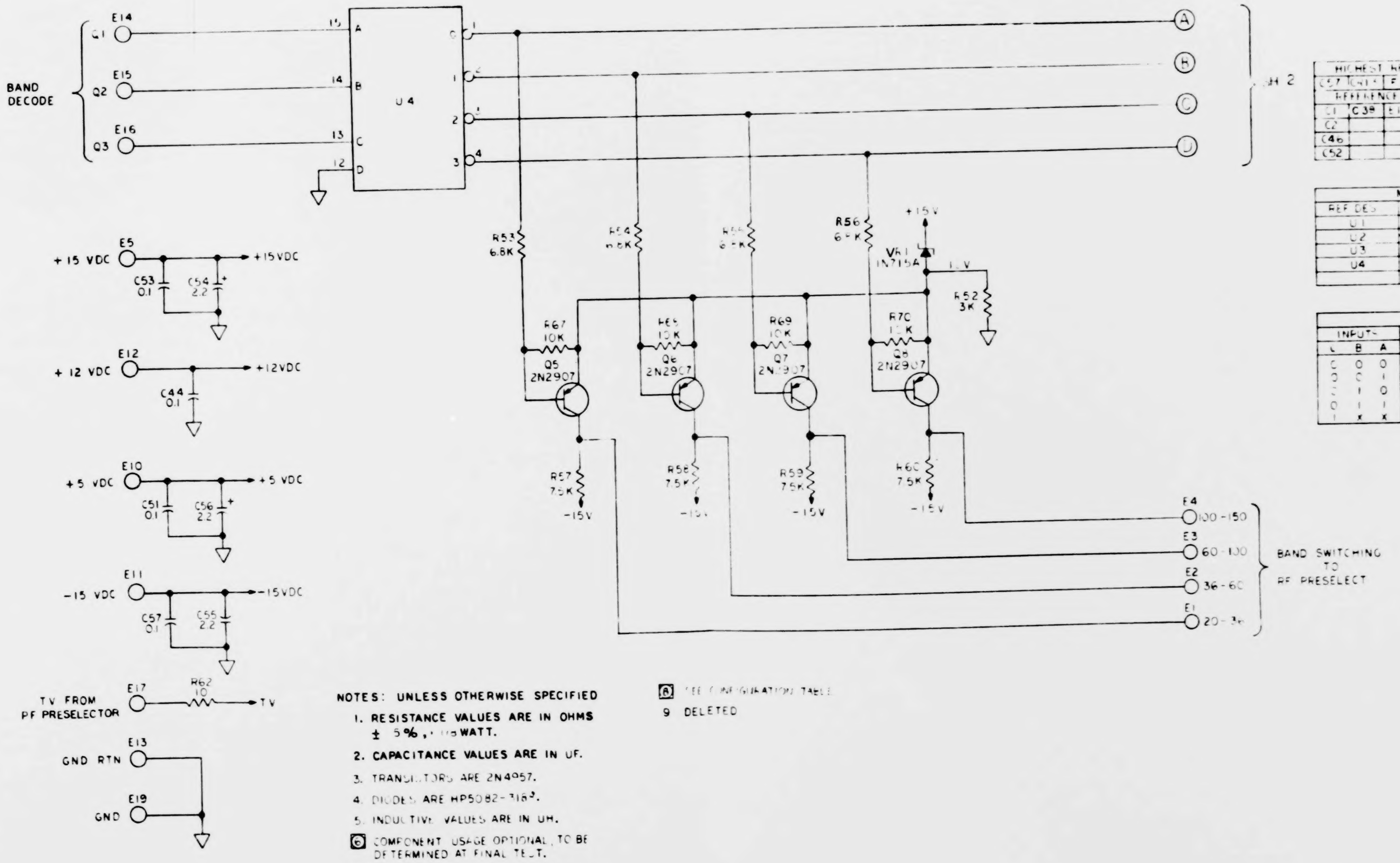


Figure FO-16. RF Preselector CCA A8A1 Schematic Diagram (Sheet 2 of 2)

TRUTH TABLE		
INPUT		
Q3	Q2	Q1
0	0	0
0	0	1
0	1	0
0	1	1
1	X	X

TRUTH TABLE							
INPUTS			OUTPUTS				
C	B	A	0	1	2	3	
0	0	0	0	1	1	1	BAND 1 ON
0	0	1	1	0	1	1	BAND 2 ON
0	1	0	1	1	0	1	BAND 3 ON
0	1	1	1	1	1	0	BAND 4 ON
1	X	X	1	1	1	1	ALL BANDS OFF



HIGHEST REFERENCE DESIGNATIONS								
C57	CR14	E19	L5	Q8	R70	T7	U4	VR1
REFERENCE DESIGNATIONS NOT USED								
C1	C38	E18	L1					
C2					R48			
C46					R50			
C52					R51			

MICRO CIRCUIT IDENT				
REF DES	TYPE	VCC	GND	+ V
U1	MC15609	—	10	3
U2	GPD402	—	3	1
U3	AH52	—	4,8,12	2
U4	SN5445J	16	8	—

TRUTH TABLE							
INPUTS			OUTPUTS				
C	B	A	0	1	2	3	
0	0	0	0	1	1	1	BAND 1 ON
0	0	1	1	0	1	1	BAND 2 ON
0	1	0	1	1	0	1	BAND 3 ON
0	1	1	1	1	1	0	BAND 4 ON
1	x	x	1	1	1	1	ALL BANDS OFF

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. TRANSISTORS ARE 2N4957.
4. DIODES ARE HP5082-3188.
5. INDUCTIVE VALUES ARE IN UH.

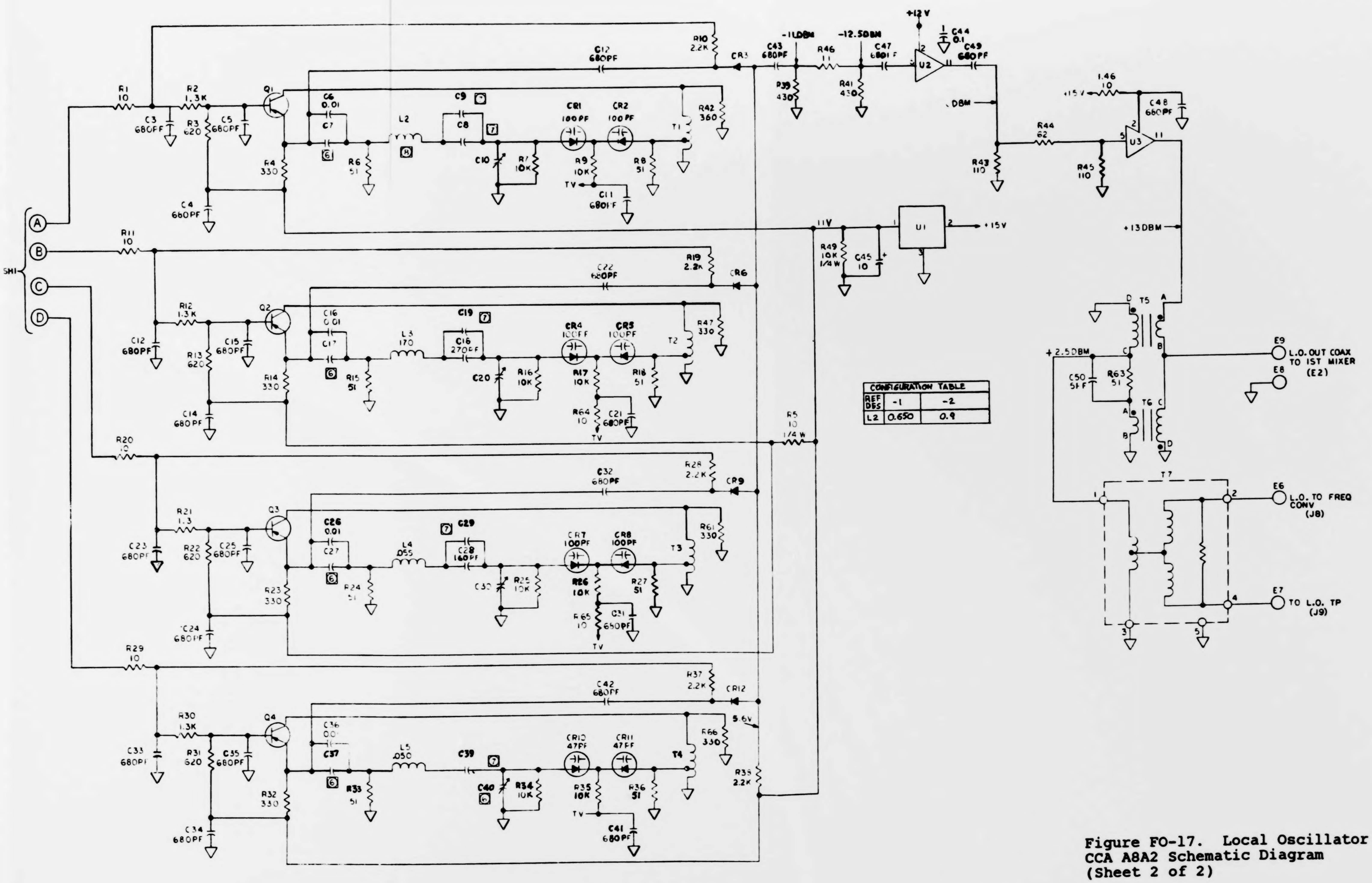
6 COMPONENT USAGE OPTIONAL, TO BE DETERMINED AT FINAL TEST.

7 FOR COMPONENT RANGE SEE PARTS KIT DRAWING 21-129246, 21-129247, 21-129248

8 SEE CONFIGURATION TABLE

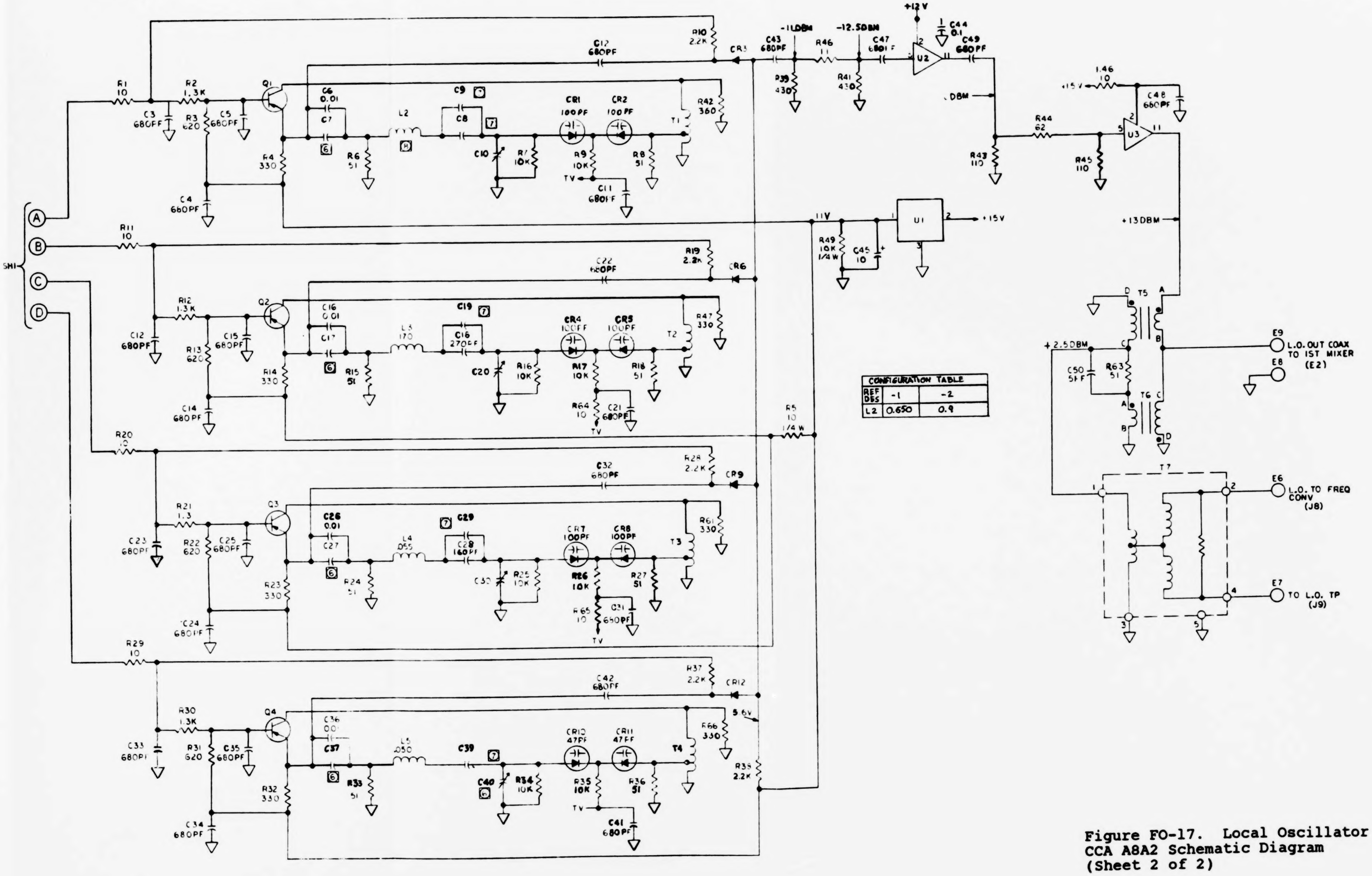
9 DELETED

Figure FO-17. Local Oscillator CCA A8A2 Schematic Diagram (Sheet 1 of 2)



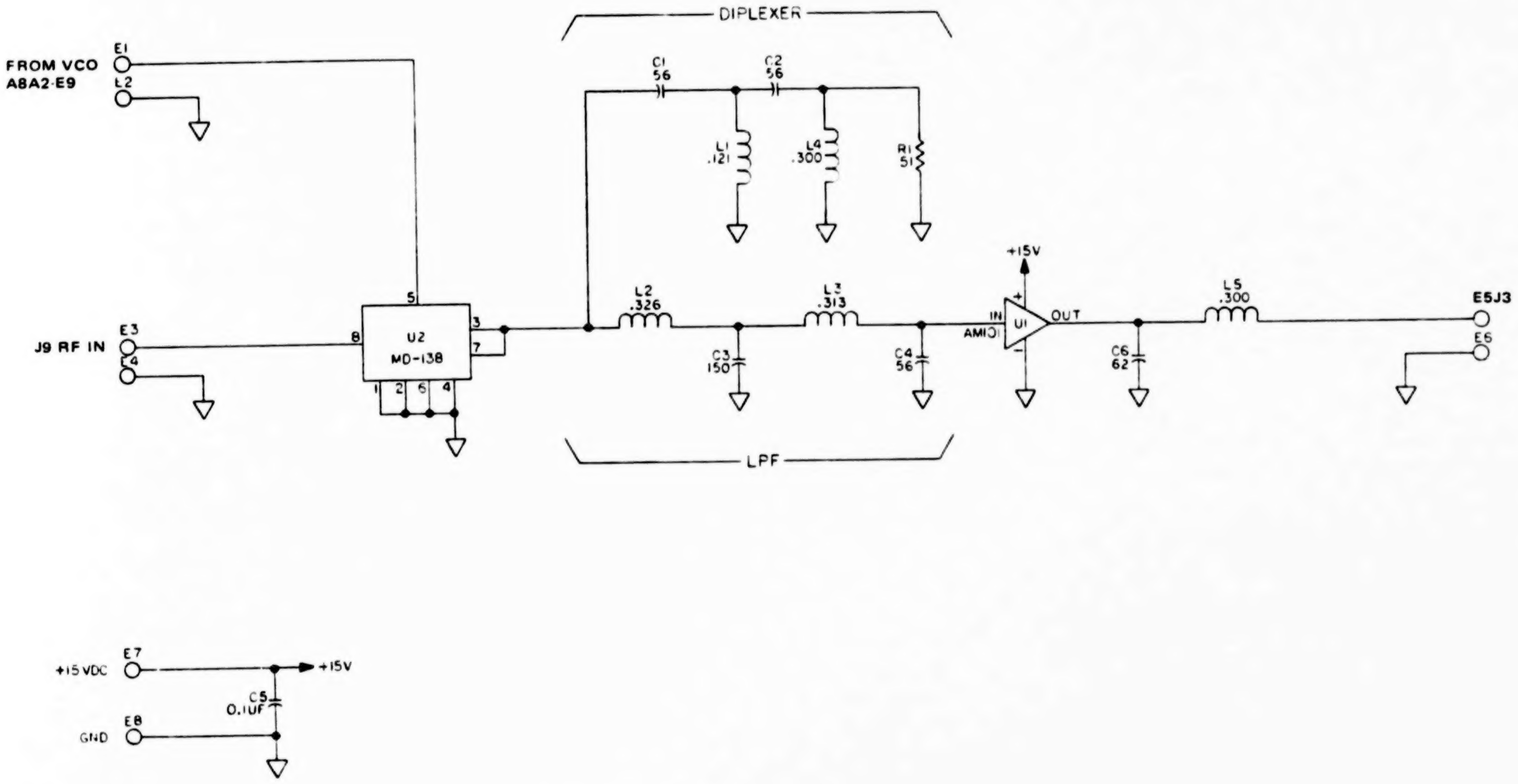
CONFIGURATION TABLE		
REF DES	-1	-2
L2	0.650	0.9

Figure FO-17. Local Oscillator CCA A8A2 Schematic Diagram (Sheet 2 of 2)



CONFIGURATION TABLE		
REF DES	-1	-2
L2	0.650	0.9

Figure FO-17. Local Oscillator CCA A8A2 Schematic Diagram (Sheet 2 of 2)

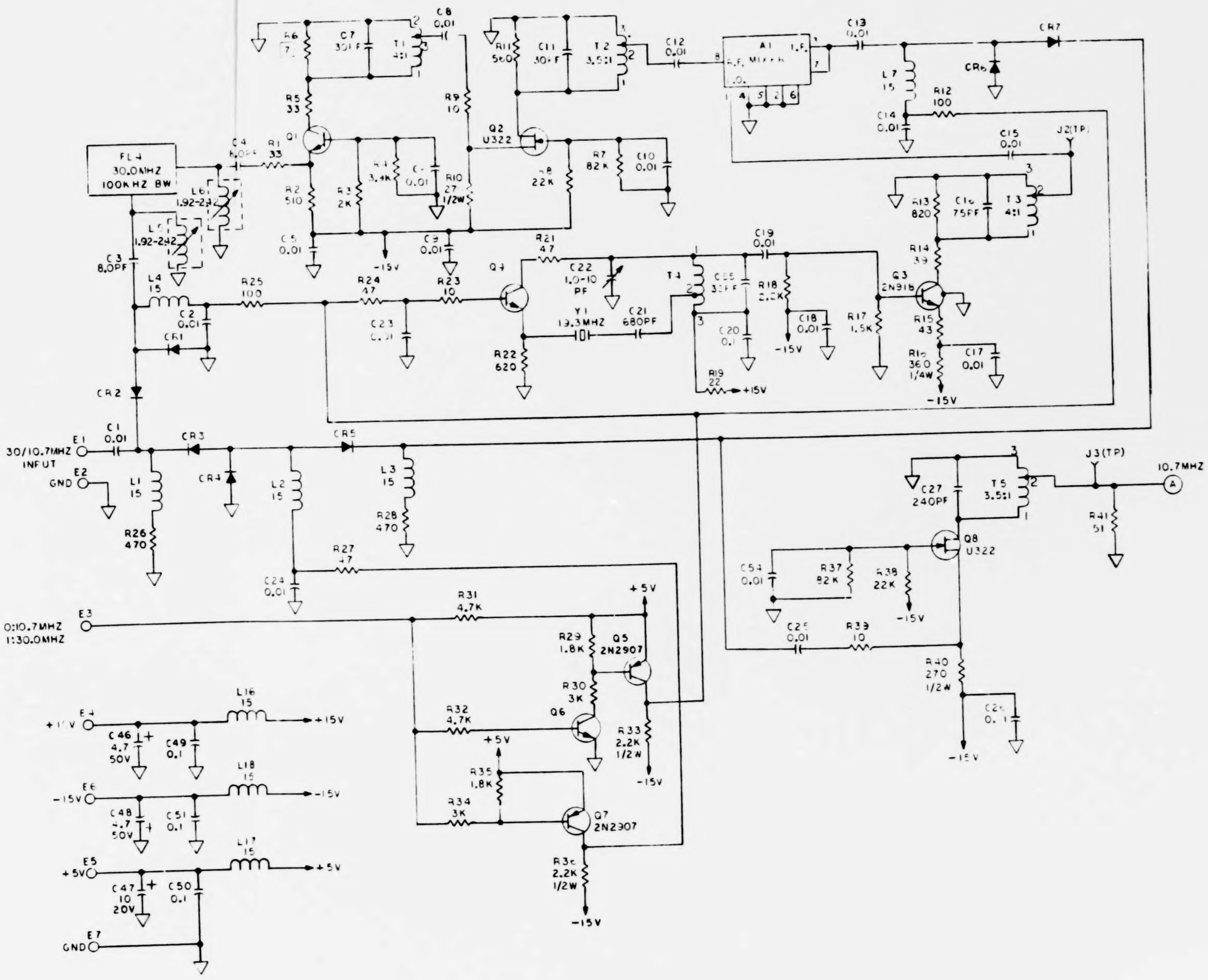


HIGHEST REFERENCE DESIGNATIONS					
	C6	E8	L5	R1	U2
REFERENCE DESIGNATIONS NOT USED					

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN PF.
3. INDUCTANCE VALUES ARE IN UH.
4. DELETED

Figure FO-18. IF Mixer CCA A8A3 Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS										
A1	C55	[illegible]	E11	FL6	J3	L18	Q13	R70	T6	Y1
REFERENCE DESIGNATIONS NOT USED										
				FL1				R20		
				FL2						
				FL3						

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5 %, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH.
4. TRANSISTORS ARE 2N2222A.
5. DIODES ARE IN3188.
6. DELETED

7 VALUE TO BE DETERMINED AT FINAL TEST

Figure FO-19. IF Amplifier ECA A9
Schematic Diagram (Sheet 1 of 2)

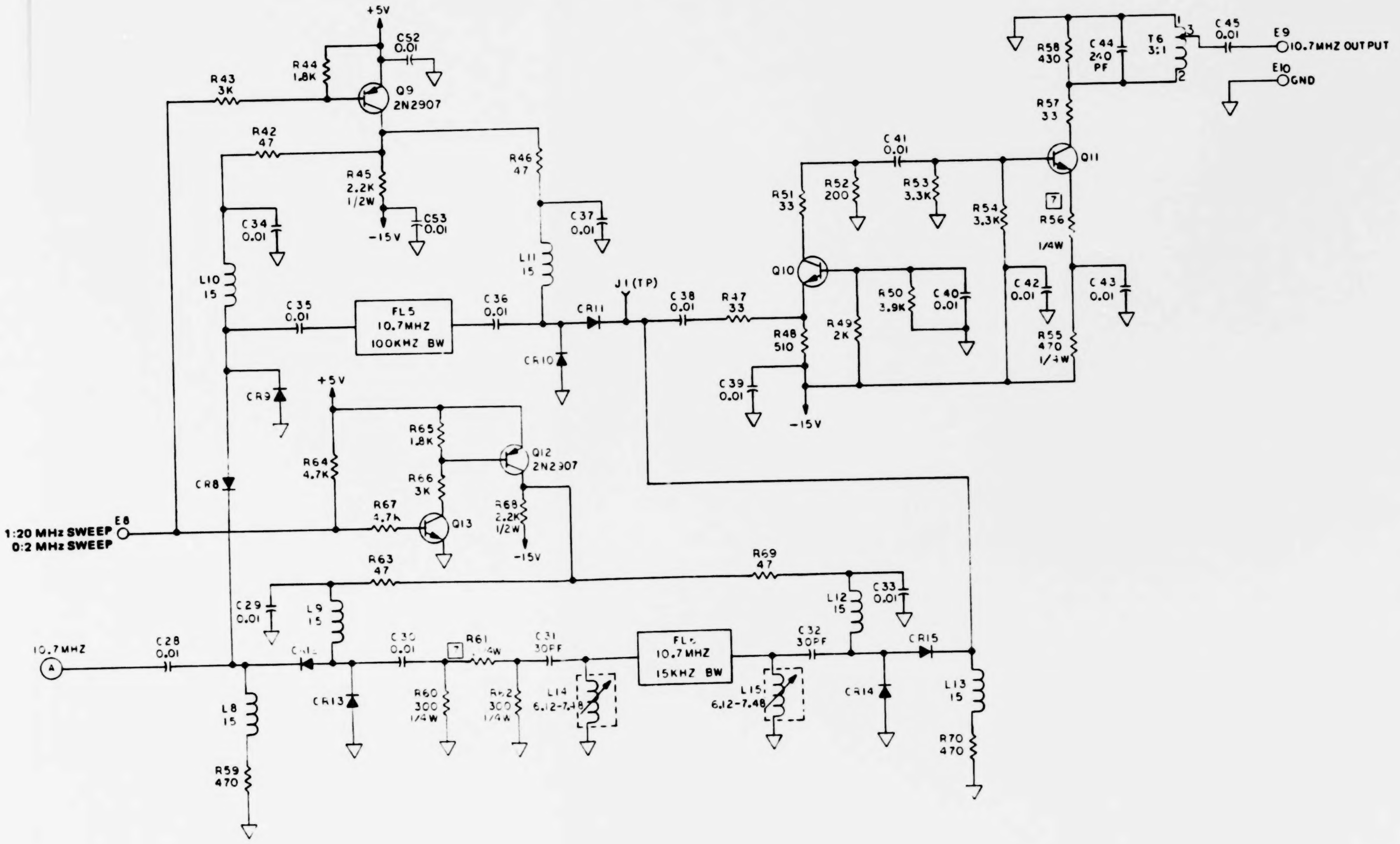
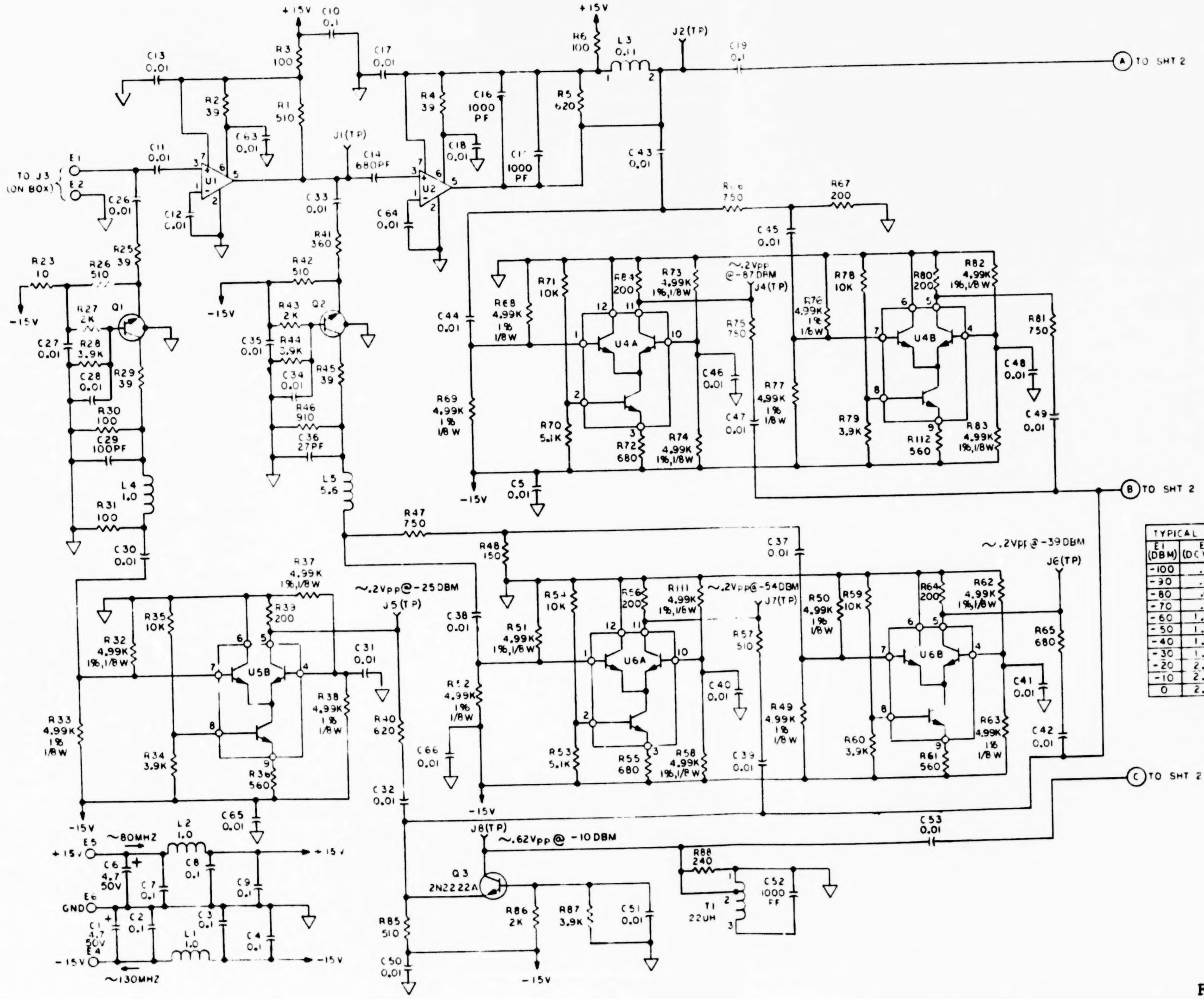


Figure FO-19. IF Amplifier ECA A9 Schematic Diagram (Sheet 2 of 2)



HIGHEST REFERENCE DESIGNATIONS									
C69	CR2	E6	J9	L7	Q5	R112	T1	U9	VR2
REFERENCE DESIGNATIONS NOT USED									

MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+ V	- V
U1,U2	MC1590G	—	4,8	7	—
U3-U6	CA3049T	—	—	—	—
U7	CA3028A	—	—	—	—
U8,U9	UA741	—	—	7	4

TYPICAL DATA	
E1 (DBM)	E3 (DC VOLTS)
-100	.11
-90	.27
-80	.48
-70	.75
-60	1.06
-50	1.34
-40	1.65
-30	1.98
-20	2.27
-10	2.51
0	2.60

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5 %, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH.
4. DIODES ARE IN5711
5. TRANSISTORS ARE 2N918.

Figure FO-20. Logarithmic Amplifier ECA A10 Schematic Diagram (Sheet 1 of 2)

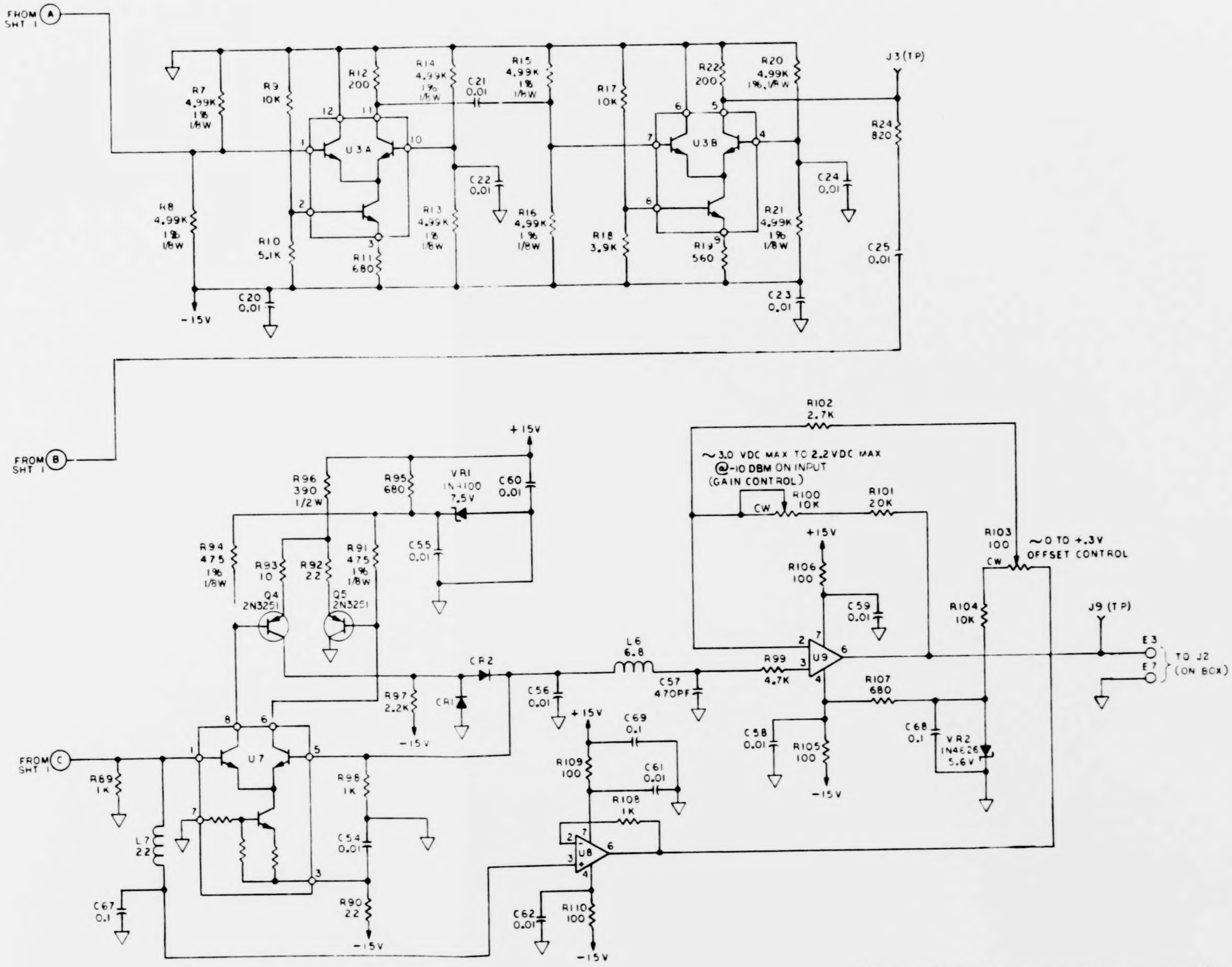
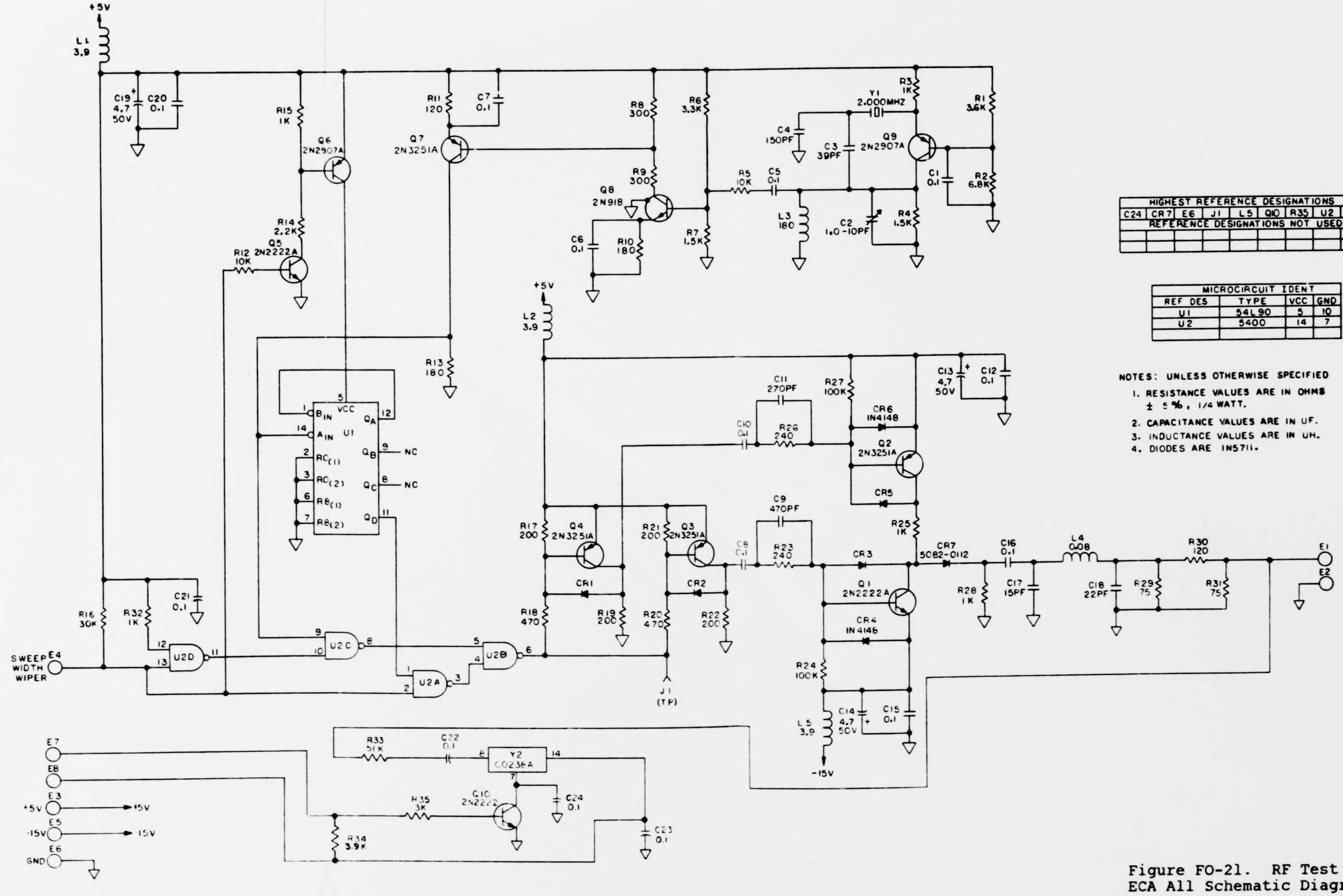


Figure FO-20. Logarithmic Amplifier ECA A10 Schematic Diagram (Sheet 2 of 2)



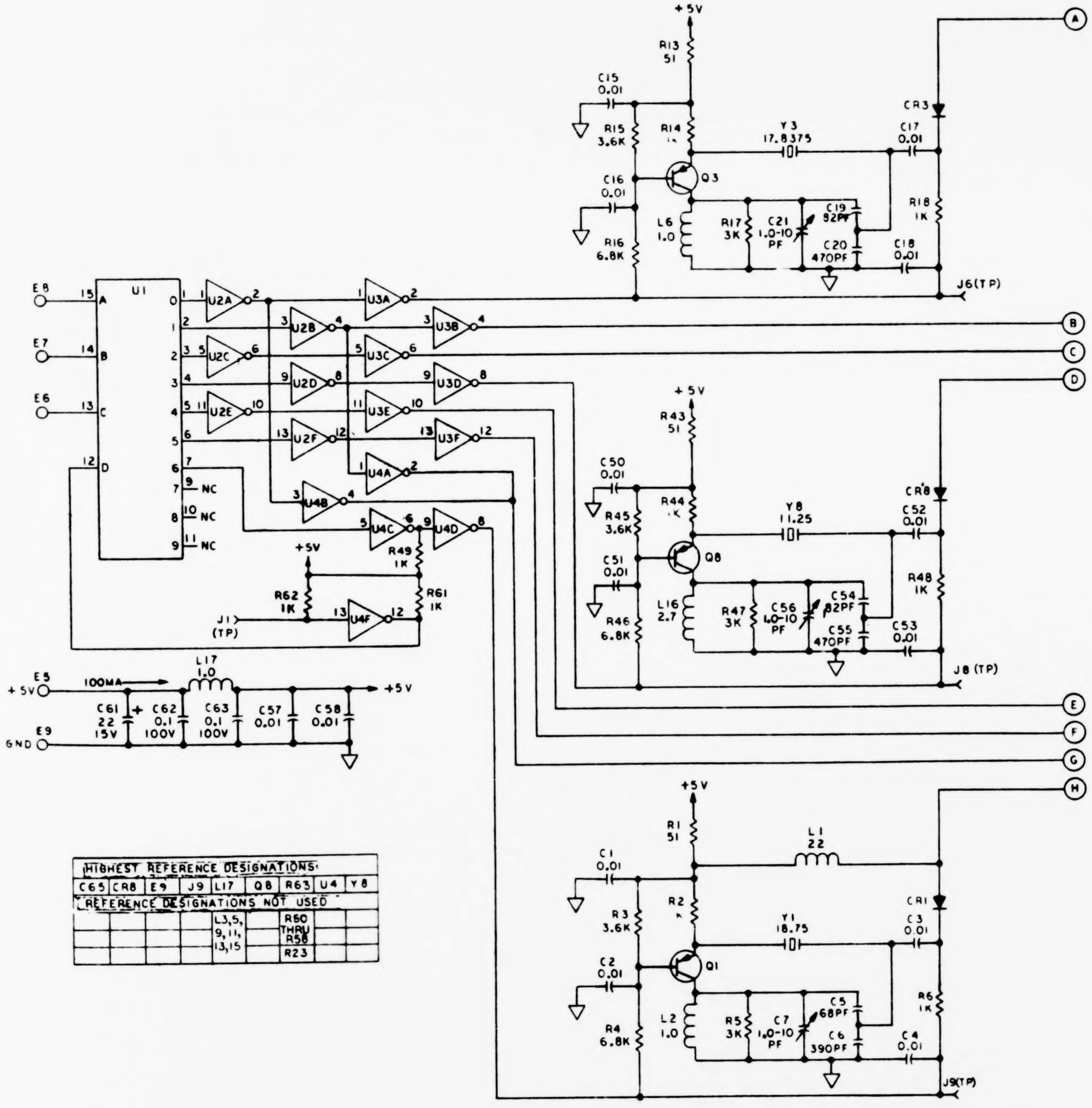
HIGHEST REFERENCE DESIGNATIONS								
C24	CR7	E6	J1	L5	Q10	R35	U2	Y2
REFERENCE DESIGNATIONS NOT USED								

MICROCIRCUIT IDENT			
REF DES	TYPE	VCC	GND
U1	54L90	5	10
U2	5400	14	7

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH.
4. DIODES ARE 1N5711.

Figure FO-21. RF Test Generator ECA A11 Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS								
C65	CR8	E9	J9	L17	Q8	R63	U4	Y8
REFERENCE DESIGNATIONS NOT USED								
				L3,5, 9,11, 13,15		R50 THRU R58		
						R23		

MICROCIRCUIT IDENT			
REF DES	TYPE	VCC	GND
U1	54L42	16	8
U2	5404	14	7
U3,U4	5406	14	7

TRUTH TABLE												
E1(MHZ)	E3(MHZ)	E6	E7	E8	J6	J3	J2	J8	J5	J4	J9	J7
16.5	17.8375	0	0	0	0	1	1	1	1	1	1	0
16.5	20.3375	0	0	1	1	0	1	1	1	1	1	0
8.75	—	0	1	0	1	1	0	1	1	1	1	1
11.25	—	0	1	1	1	1	1	0	1	1	1	1
13.75	—	1	0	0	1	1	1	1	0	1	1	1
16.25	—	1	0	1	1	1	1	1	1	0	1	1
18.75	—	1	1	0	1	1	1	1	1	1	0	1
—	—	1	1	1	1	1	1	1	1	1	1	1

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ±5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF, 200 V, 10%.
3. INDUCTANCE VALUES ARE IN UH.
4. ALL TRANSISTORS ARE 2N2907.
5. ALL DIODES ARE 5082-2800.
6. ALL CRYSTAL VALUES ARE IN MHz.
7. DELETED.

Figure FO-22. RF Oscillator ECA A12 Schematic Diagram (Sheet 1 of 2)

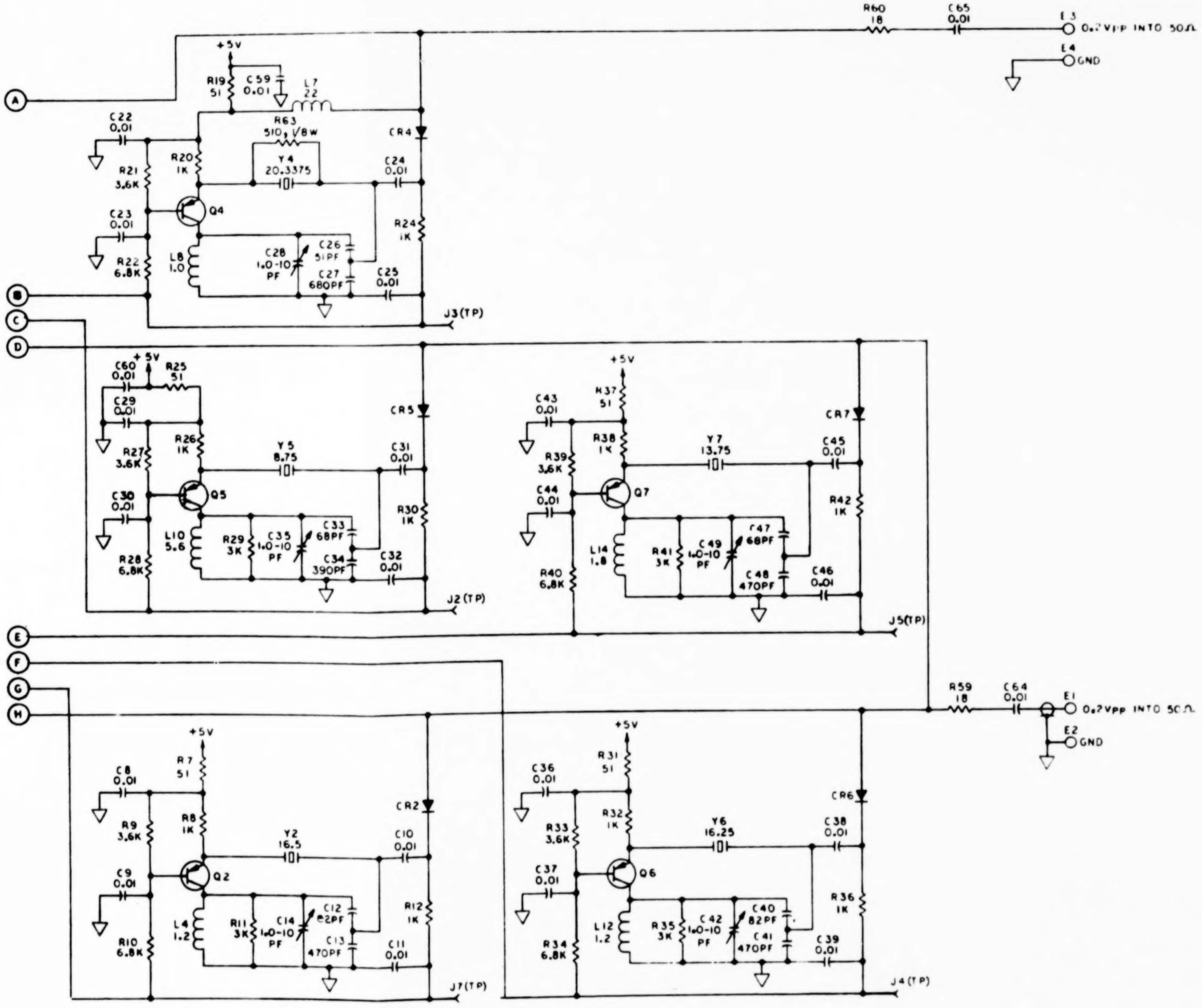
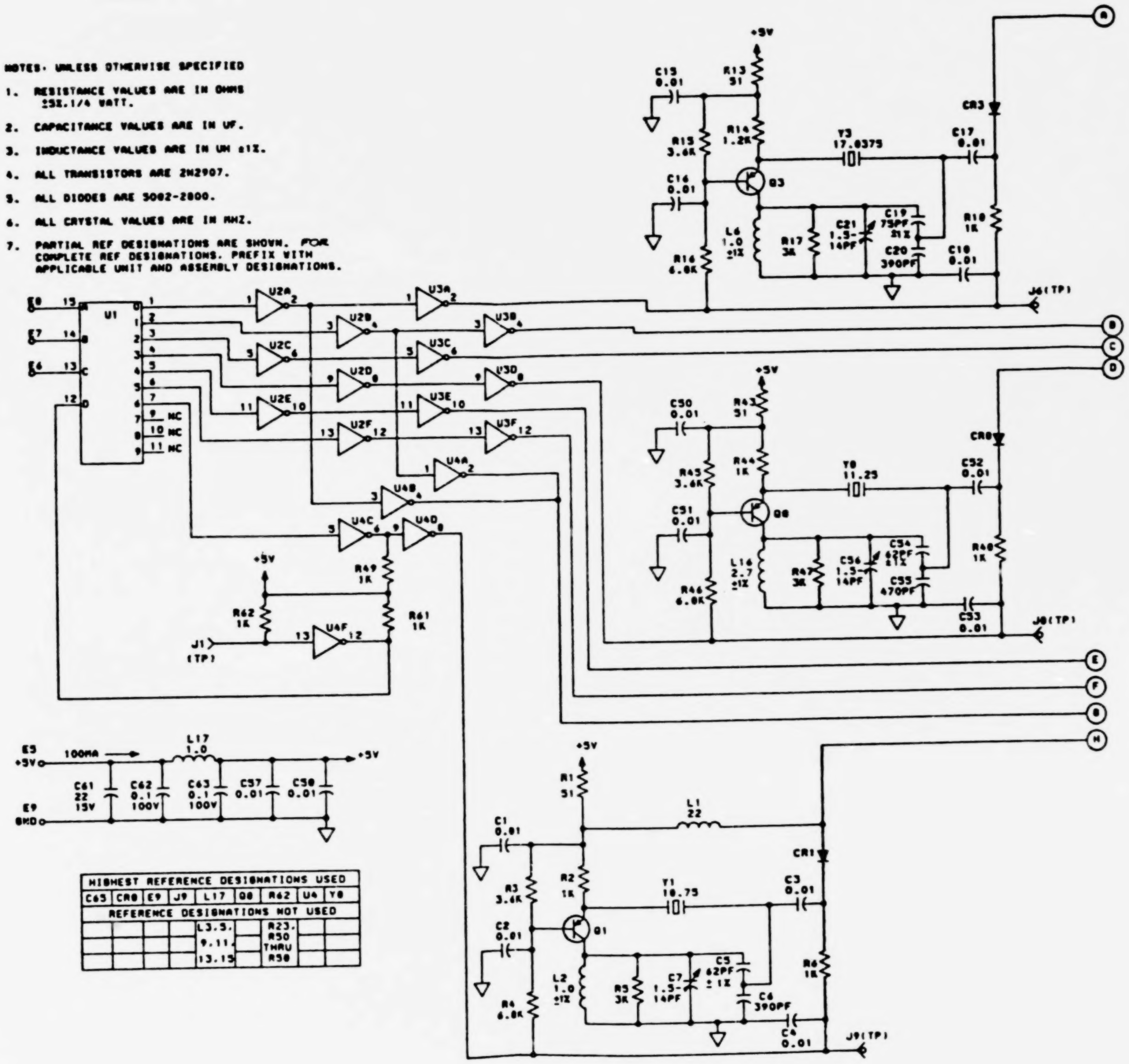


Figure FO-22. RF Oscillator ECA
A12 Schematic Diagram
(Sheet 2 of 2)

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ±5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH ±1%.
4. ALL TRANSISTORS ARE 2N2907.
5. ALL DIODES ARE 5082-2800.
6. ALL CRYSTAL VALUES ARE IN MHZ.
7. PARTIAL REF DESIGNATIONS ARE SHOWN. FOR COMPLETE REF DESIGNATIONS, PREFIX WITH APPLICABLE UNIT AND ASSEMBLY DESIGNATIONS.



HIGHEST REFERENCE DESIGNATIONS USED								
C65	CR8	E9	J9	L17	Q8	R62	U4	Y8
REFERENCE DESIGNATIONS NOT USED								
				L3,5, 9,11, 13,15		R23, R50 THRU R58		

MICROCIRCUIT IDENT			
REF DES	TYPE	VCC	GND
U1	54L42	16	8
U2	5404	14	7
U3,U4	5406	14	7

TRUTH TABLE												
E1(MHZ)	E3(MHZ)	E6	E7	E8	J6	J3	J2	J8	J5	J4	J9	J7
16.5	17.0375	0	0	0	0	1	1	1	1	1	1	0
16.5	20.3375	0	0	1	1	0	1	1	1	1	1	0
8.75	—	0	1	0	1	1	0	1	1	1	1	1
11.25	—	0	1	1	1	1	1	0	1	1	1	1
13.75	—	1	0	0	1	1	1	1	0	1	1	1
16.25	—	1	0	1	1	1	1	1	1	0	1	1
18.75	—	1	1	0	1	1	1	1	1	1	0	1
—	—	1	1	1	1	1	1	1	1	1	1	1

Figure FO- 23 RF Oscillator ECA A12 P/N 1951-1-4127-3 Schematic Diagram (Sheet 1 of 2)

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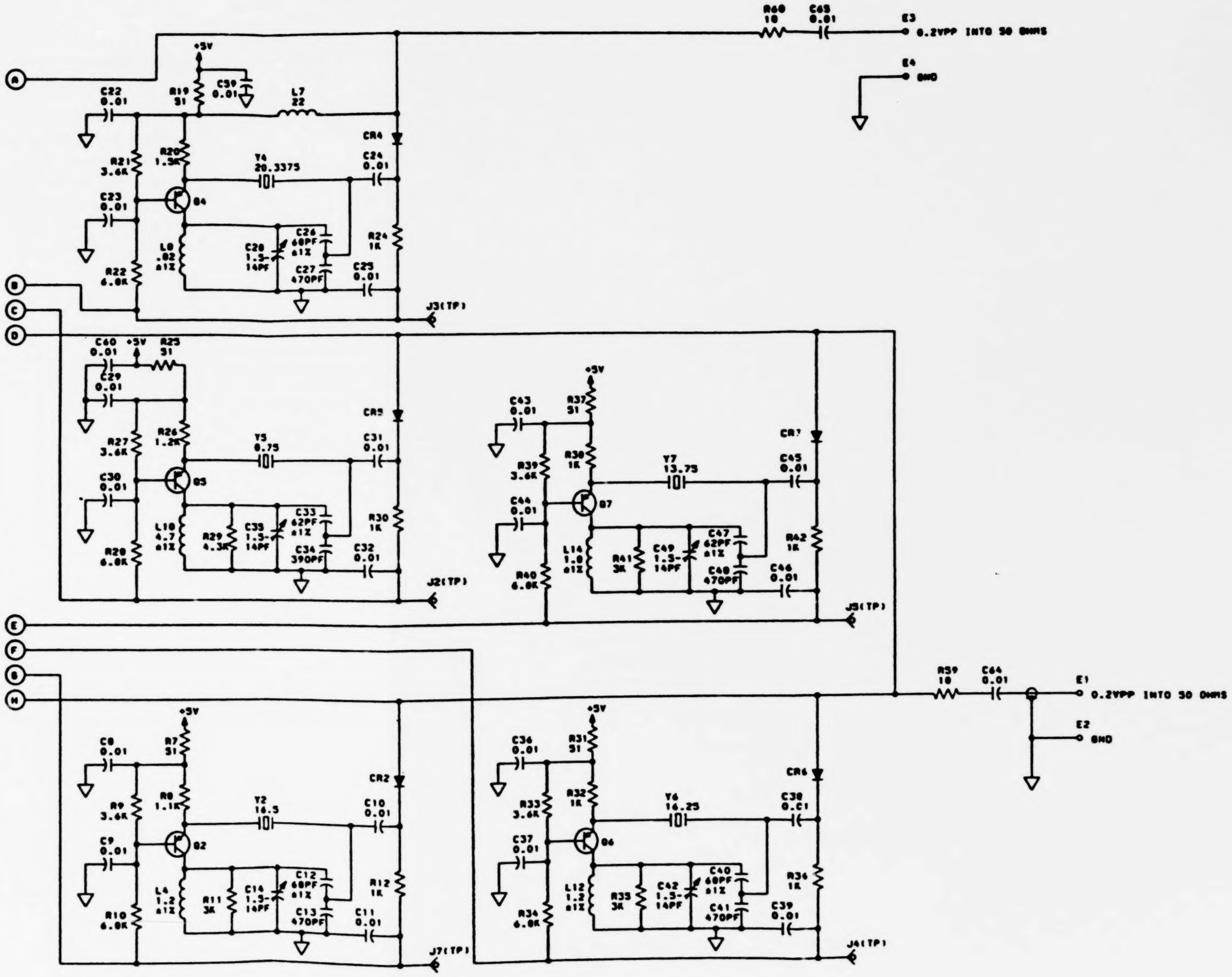

Figure FO- 23 **RF Oscillator ECA A12 P/N 1951-1-4127-3 Schematic Diagram (Sheet 2 of 2)**

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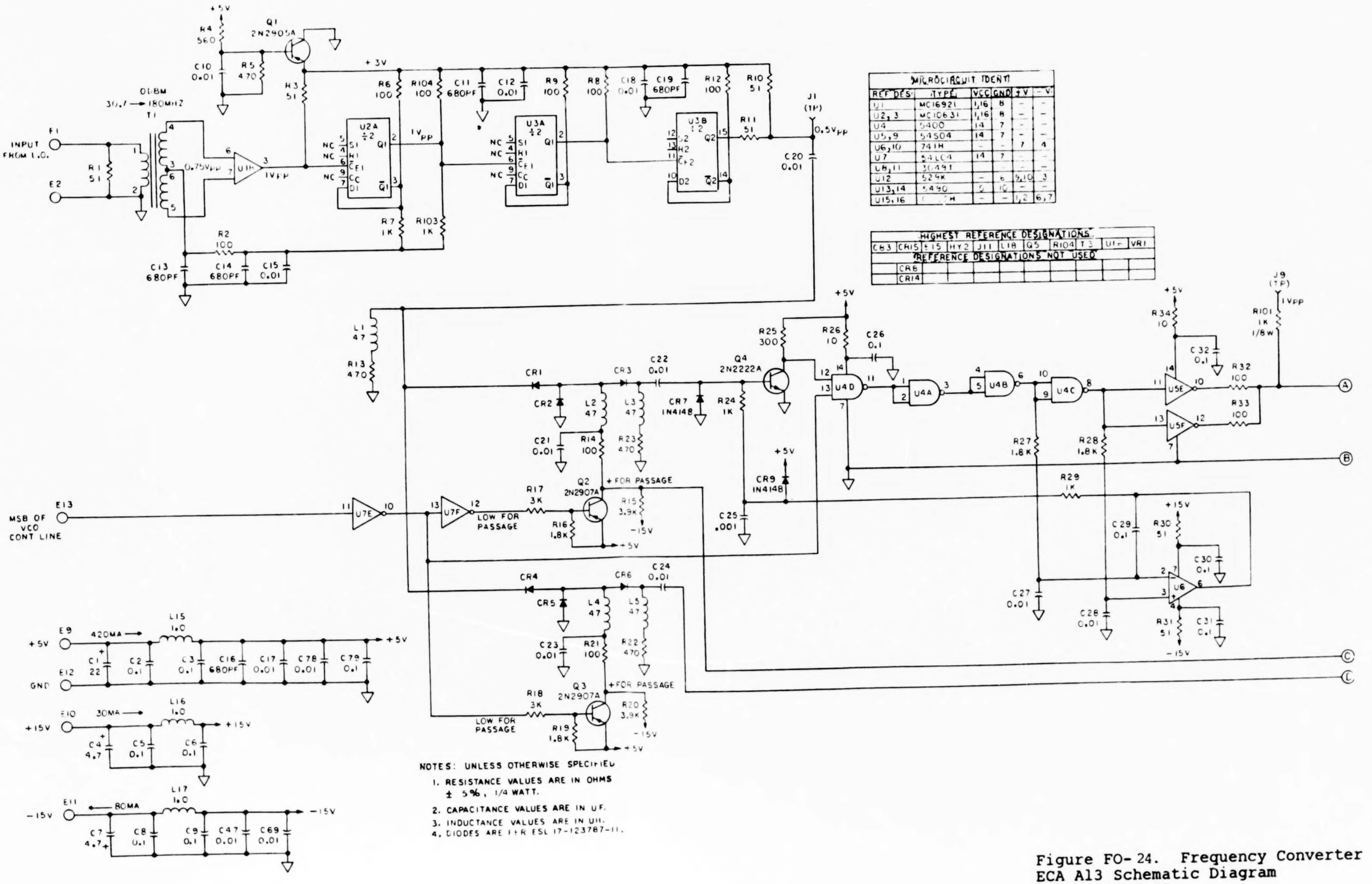


MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+V	-V
U1	MC16921	1,16	8	-	-
U2, 3	MC10631	1,16	8	-	-
U4	5400	14	7	-	-
U5, 9	54S04	14	7	-	-
U6, 10	741H	-	-	7	4
U7	54LC4	14	7	-	-
U8, 11	30491		-	-	-
U12	529K	-	6	9,10	3
U13, 14	5490	5	10	-	-
U15, 16	[illegible]H	-	-	1,2	6,7

HIGHEST REFERENCE DESIGNATIONS										
C83	CR15	E15	HY2	J11	L18	Q5	R104	T3	U16	VR1
REFERENCE DESIGNATIONS NOT USED										
	CR8									
	CR14									

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH.
4. DIODES ARE F+R ESL 17-123787-11.

Figure FO-24. Frequency Converter ECA A13 Schematic Diagram (Sheet 1 of 3)

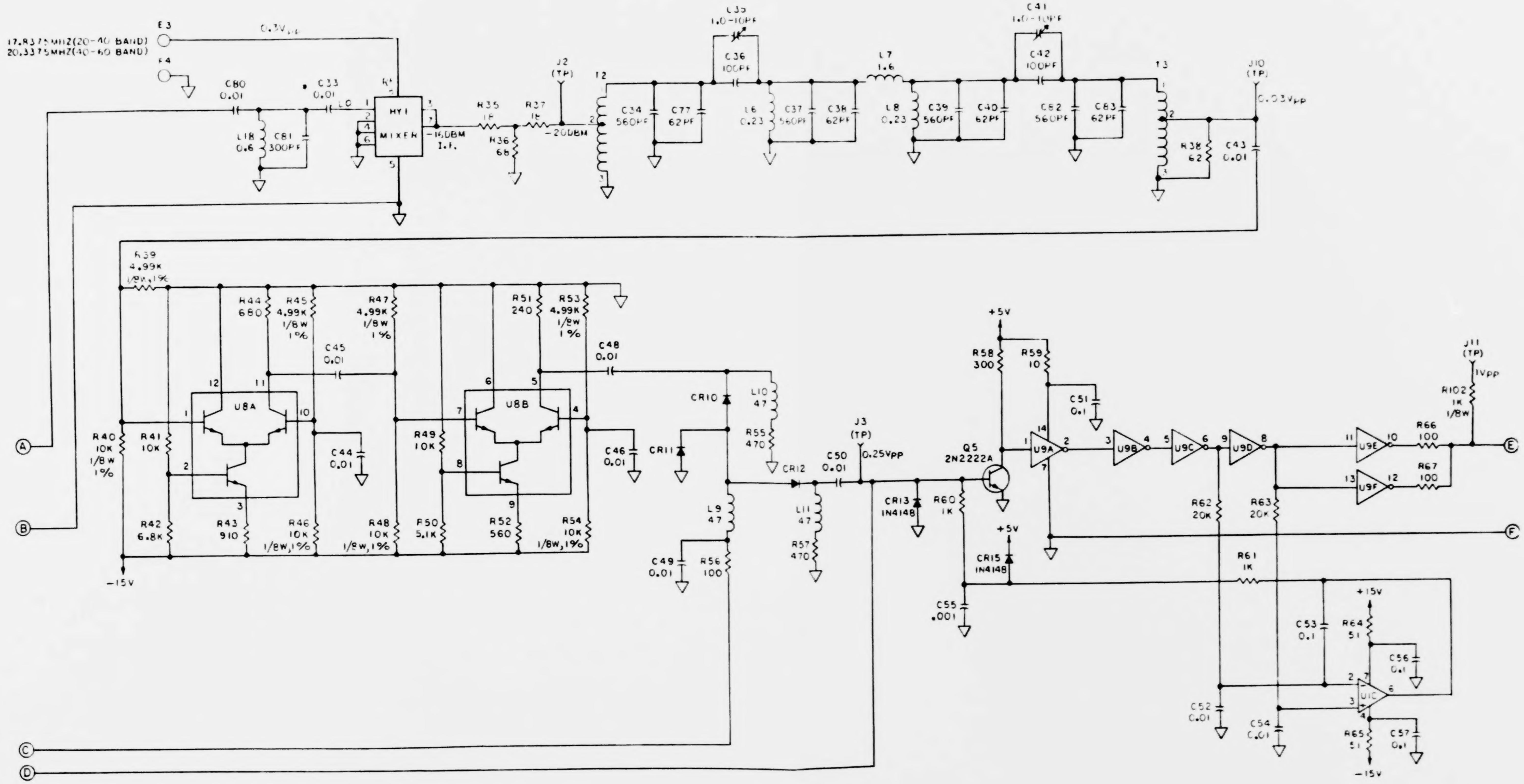


Figure FO- 24. Frequency Converter ECA A13 Schematic Diagram (Sheet 2 of 3)

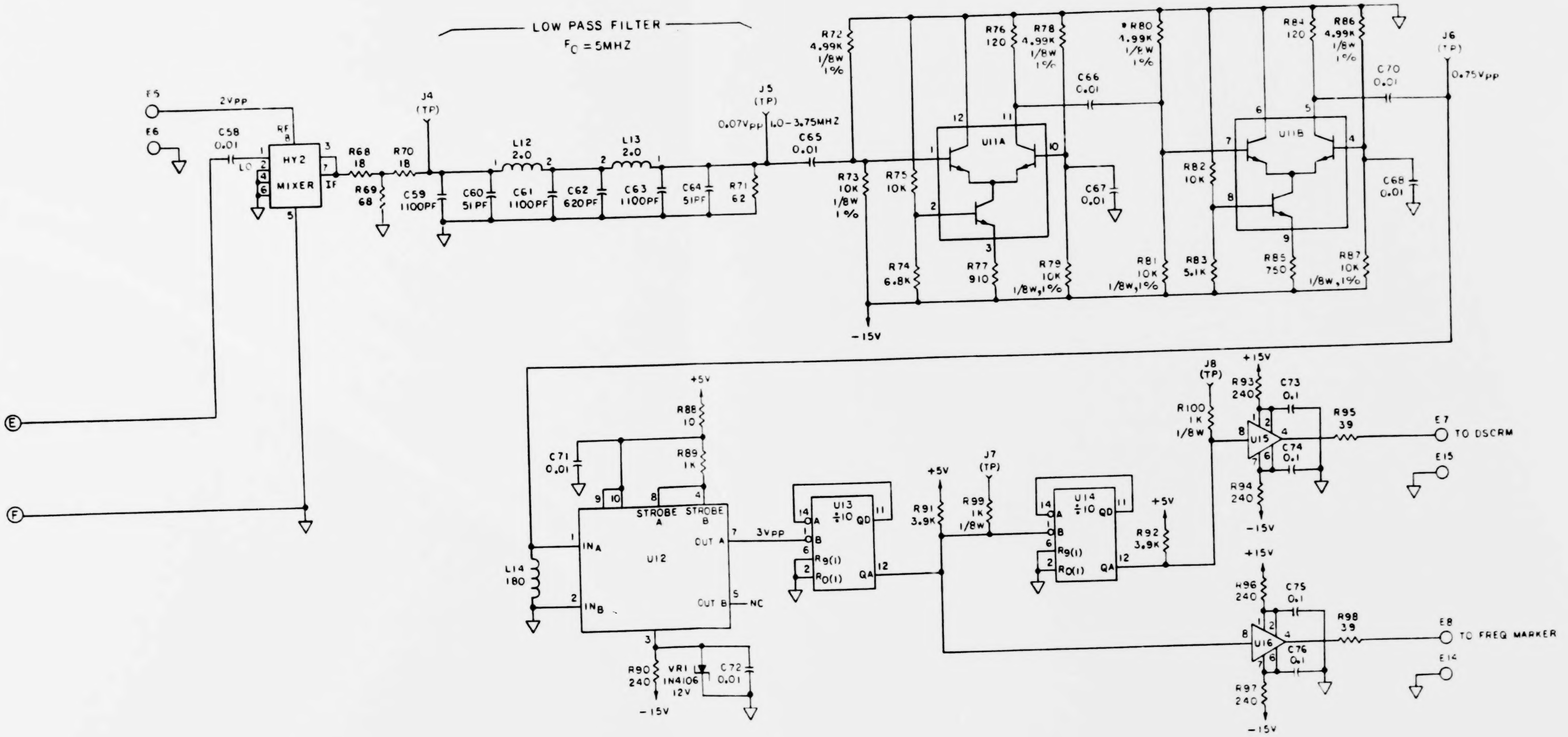
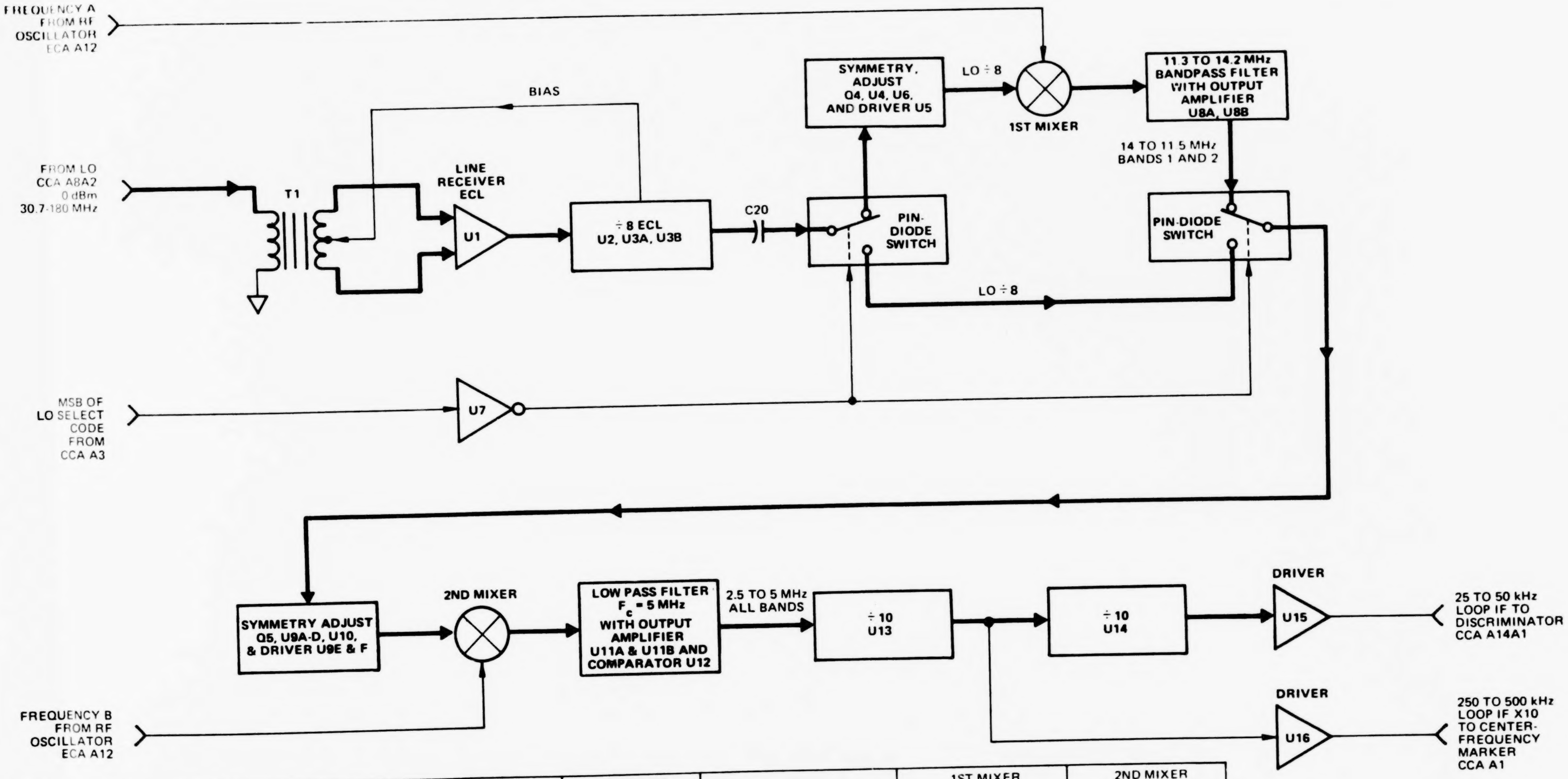


Figure FO-24. Frequency Converter ECA A13 Schematic Diagram (Sheet 3 of 3)

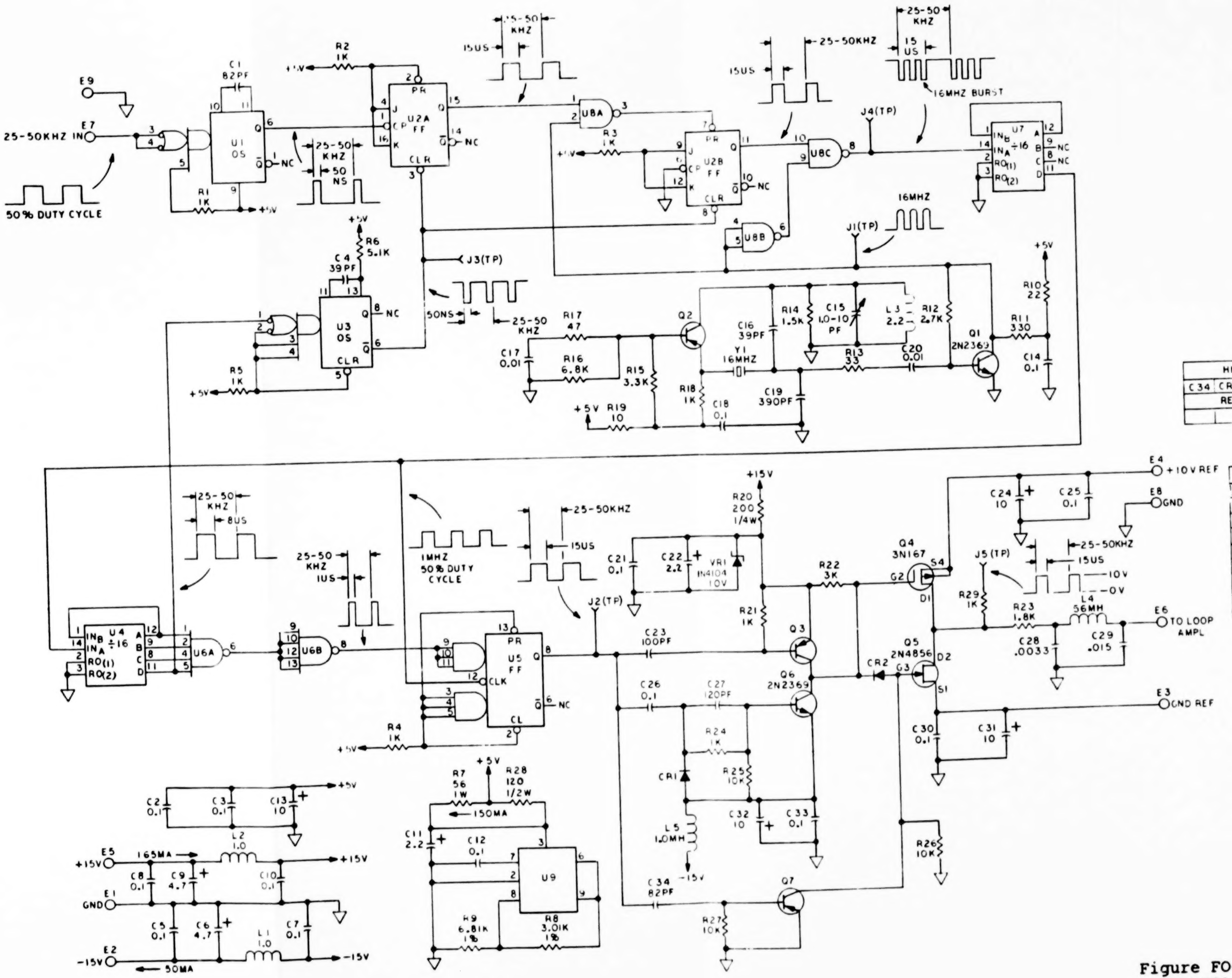

FREQUENCY A
FROM RF
OSCILLATOR
ECA A12
SYMMETRY, ADJUST Q4, U4, U6, AND DRIVER U5
LO ÷ 8
1ST MIXER
11.3 TO 14.2 MHz BANDPASS FILTER WITH OUTPUT AMPLIFIER U8A, U8B
BIAS
FROM LO
CCA A8A2
0 dBm
30.7-180 MHz
T1
LINE RECEIVER ECL
U1
÷ 8 ECL U2, U3A, U3B
C20
PIN-DIODE SWITCH
14 TO 11.5 MHz BANDS 1 AND 2
PIN-DIODE SWITCH
LO ÷ 8
MSB OF
LO SELECT
CODE
FROM
CCA A3
U7
2ND MIXER
SYMMETRY ADJUST Q5, U9A-D, U10, & DRIVER U9E & F
LOW PASS FILTER F_c = 5 MHz WITH OUTPUT AMPLIFIER U11A & U11B AND COMPARATOR U12
2.5 TO 5 MHz ALL BANDS
÷ 10 U13
÷ 10 U14
DRIVER
U15
25 TO 50 kHz LOOP IF TO DISCRIMINATOR CCA A14A1
DRIVER
U16
250 TO 500 kHz LOOP IF X10 TO CENTER-FREQUENCY MARKER CCA A1
FREQUENCY B
FROM RF
OSCILLATOR
ECA A12

20 MHz BAND NO.	RF OSC A12 OUTPUT, MHz		LO FREQ RANGE, MHz	LO SELECT MSB	LO ÷ 8, MHz	1ST MIXER OUTPUT, MHz	2ND MIXER OUTPUT, MHz
	FREQ A	FREQ B					
1	17.8375	16.50	30.7 – 50.7	L	3.8375 – 6.3375	14 – 11.5	2.5 – 5
2	20.3375	16.50	50.7 – 70.7	L	6.3375 – 8.8375	14 – 11.5	2.5 – 5
3	–	8.75	90 – 110	H	11.25 – 13.75	N/A	2.5 – 5
4	–	11.25	110 – 130	H	13.75 – 16.25	N/A	2.5 – 5
5	–	13.75	130 – 150	H	16.25 – 18.75	N/A	2.5 – 5
6	–	16.25	150 – 170	H	18.75 – 21.25	N/A	2.5 – 5
7	–	18.75	170 – 180[1] (190)	H	21.25 – 22.5[1] (23.75)	N/A	2.5 – 3.75[1] (5)

NOTES:

1. RECEIVER SIGNAL INHIBITED ABOVE THIS POINT. (LO SCAN CONTINUES TO END OF 20 MHz BAND, HOWEVER)
2. BAND EDGES INDICATED FOR WIDE SWEEP MODE. OVERLAP IN NARROW SWEEP MODE IS 5% OF INDICATED RANGE.

Figure FO-25. Frequency Converter ECA A13 Functional Block Diagram



HIGHEST REFERENCE DESIGNATIONS									
C34	CR2	E9	J5	L5	R29	Q7	U9	VR1	Y1
REFERENCE DESIGNATIONS NOT USED									

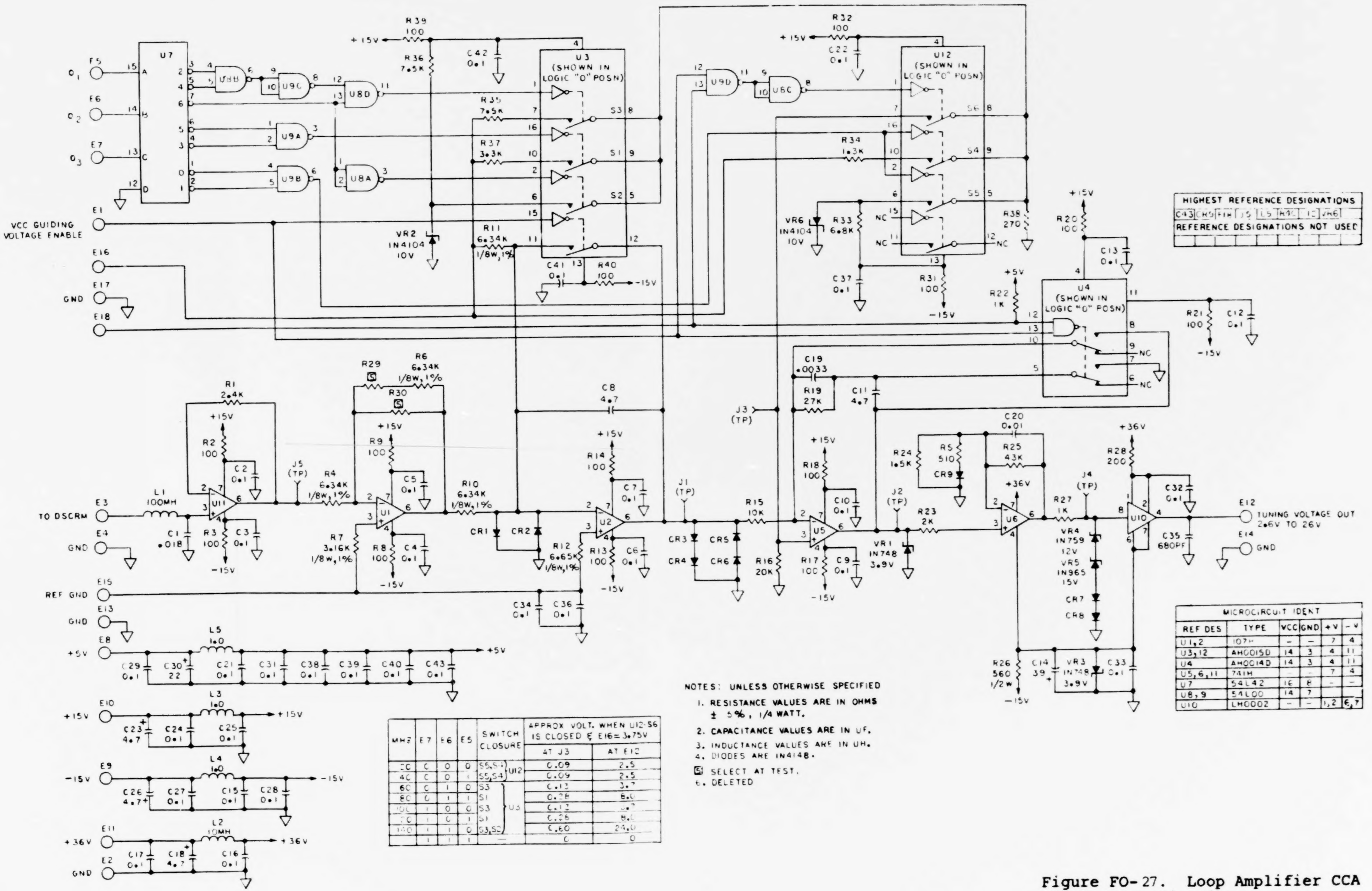
MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+V	-V
U1	54121	14	7	—	—
U2	5476	5	13	—	—
U3	54122	14	7	—	—
U4,U7	5493	5	10	—	—
U5	5472	14	7	—	—
U6	5420	14	7	—	—
U8	5400	14	7	—	—
U9	MC1561	1,5	10	3	—

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5 %, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. DELETED

4. INDUCTANCE VALUES ARE IN UH.
5. TRANSISTORS ARE 2N3251.
6. DIODES ARE IN4148.

Figure FO-26. Frequency Discriminator CCA A14A1 Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS								
C43	CR9	E18	J5	L5	R40	U12	VR6	
REFERENCE DESIGNATIONS NOT USED								

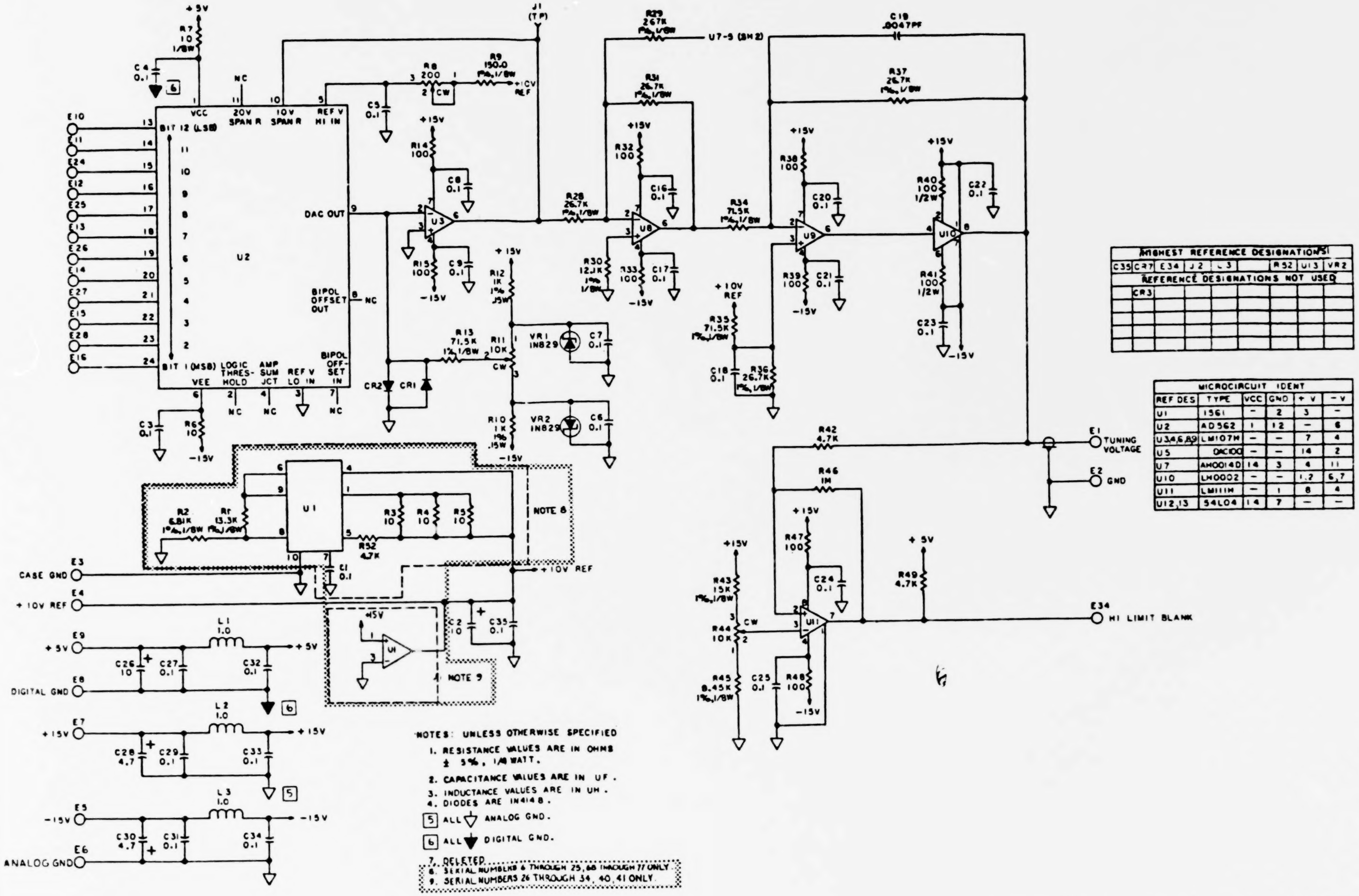
MHZ	E7	E6	E5	SWITCH CLOSURE		APPROX VOLT. WHEN U12-S6 IS CLOSED & E16=3.75V	
						AT J3	AT E12
20	0	0	0	S5,S4	U12	0.09	2.5
40	0	0	1	S5,S4		0.09	2.5
60	0	1	0	S3	U3	0.13	3.7
80	0	1	1	S1		0.28	8.0
100	1	0	0	S3		0.13	3.7
120	1	0	1	S1		0.28	8.0
140	1	1	0	S3,S2		0.60	24.0
	1	1	1	—		0	0

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH.
4. DIODES ARE IN4148.
5. SELECT AT TEST.
6. DELETED

MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+V	-V
U1,2	107H	–	–	7	4
U3,12	AH0015D	14	3	4	11
U4	AH0014D	14	3	4	11
U5,6,11	741H	–	–	7	4
U7	54L42	16	8	–	–
U8,9	54L00	14	7		
U10	LH0002	–	–	1,2	6,7

Figure FO-27. Loop Amplifier CCA A14A2 Schematic Diagram



HIGHEST REFERENCE DESIGNATIONS								
C35	CR7	E34	J2	L3		R52	U13	VR2
REFERENCE DESIGNATIONS NOT USED								
	CR3							

MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+ V	− V
U1	1561	−	2	3	−
U2	AD562	1	12	−	6
U3,4,6,8,9	LM107H	−	−	7	4
U5	DAC100	−	−	14	2
U7	AH0014D	14	3	4	11
U10	LH0002	−	−	1,2	6,7
U11	LM111H	−	1	8	4
U12,13	54L04	14	7	−	−

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS ± 5%, 1/8 WATT.
2. CAPACITANCE VALUES ARE IN UF.
3. INDUCTANCE VALUES ARE IN UH.
4. DIODES ARE 1N4148.
5. ALL ▽ ANALOG GND.
6. ALL ▼ DIGITAL GND.
7. DELETED.
8. SERIAL NUMBERS 6 THROUGH 25, 68 THROUGH 77 ONLY.
9. SERIAL NUMBERS 26 THROUGH 34, 40, 41 ONLY.

Figure FO-28. Receiver Sweep ECA A15 (with CCA A15A1, P/N 10-123554-1) Schematic Diagram (Sheet 1 of 2)

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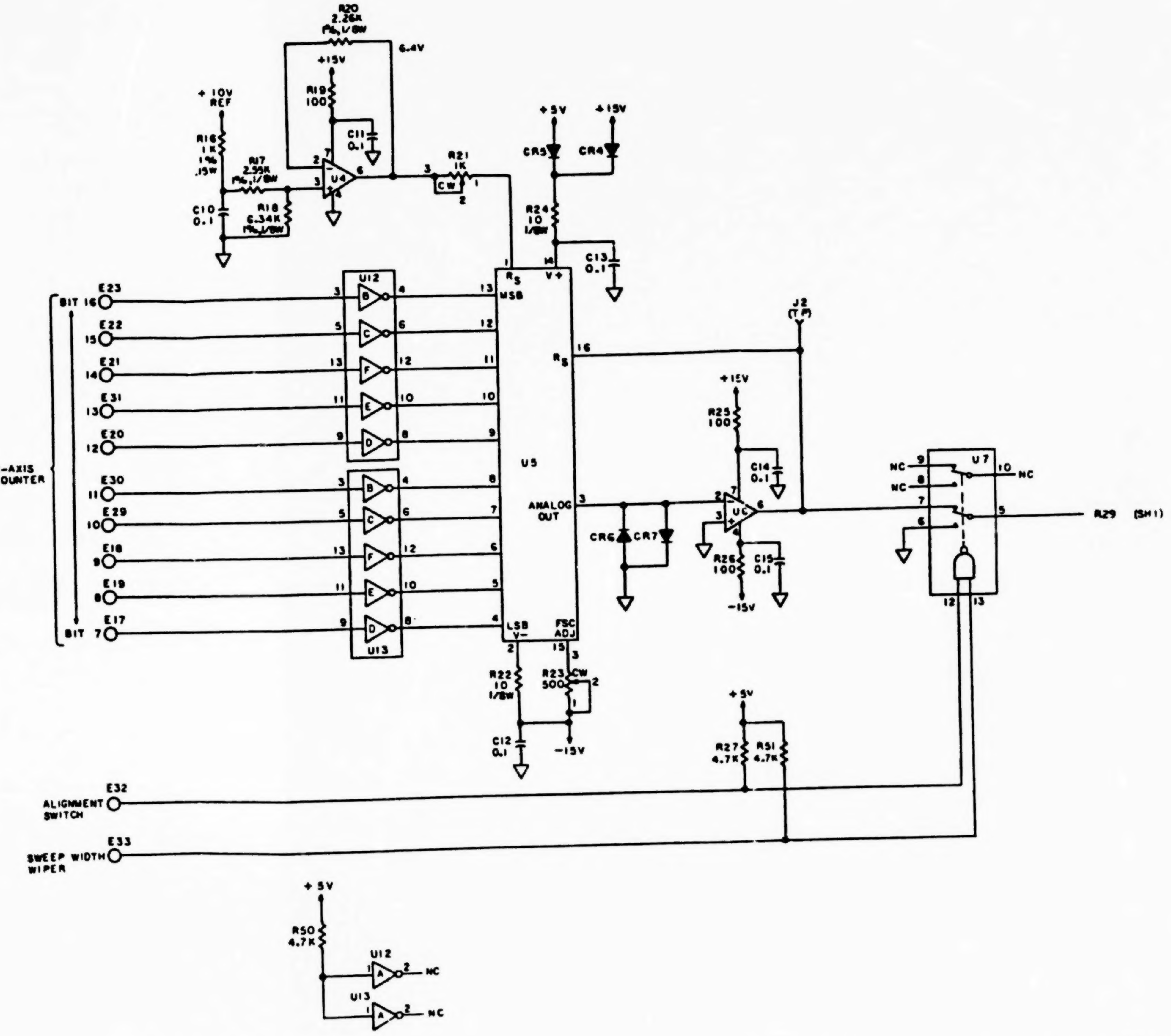

Figure FO- 28 Receiver Sweep ECA A15 (with CCA A15A1, P/N 10-123554-1) Schematic Diagram (Sheet 2 of 2)

NOTES: UNLESS OTHERWISE SPECIFIED:

1. RESISTANCE VALUES ARE IN OHMS, ±5%, 1/4 WATT.
2. CAPACITANCE VALUES ARE IN UF, 10%, 100V.
3. INDUCTANCE VALUES ARE IN UH, ±10%.
4. DIODES ARE 1N4148.
5. ALL ▽ ANALOG GND.
6. ALL ▼ DIGITAL GND.
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE REFERENCE DESIGNATION, PREFIX WITH APPLICABLE UNIT AND ASSEMBLY DESIGNATIONS.

HIGHEST REFERENCE DESIGNATIONS							
C35	CR6	E34	J2	L3	R51	U13	VR2
REFERENCE DESIGNATIONS NOT USED							
C30		E3					

MICROCIRCUIT IDENT					
REF DES	TYPE	VCC	GND	+V	−V
U1	AD562	1	12	—	6
U2-4,9,10	LM107 H	—	—	7	4
U5	LH0002H	—	—	1,2	6,7
U6,7	54L04	14	7	—	—
U8	DAC100	—	—	14	2
U11	AH0014D	14	3	4	11
U12	LH0070-1H	1	3	2	—
U13	LM111H	—	1	8	4

Figure FO- 29 Receiver Sweep ECA A15 (with CCA A15A1, P/N 5048944-1) Schematic Diagram (Sheet 1 of 3)

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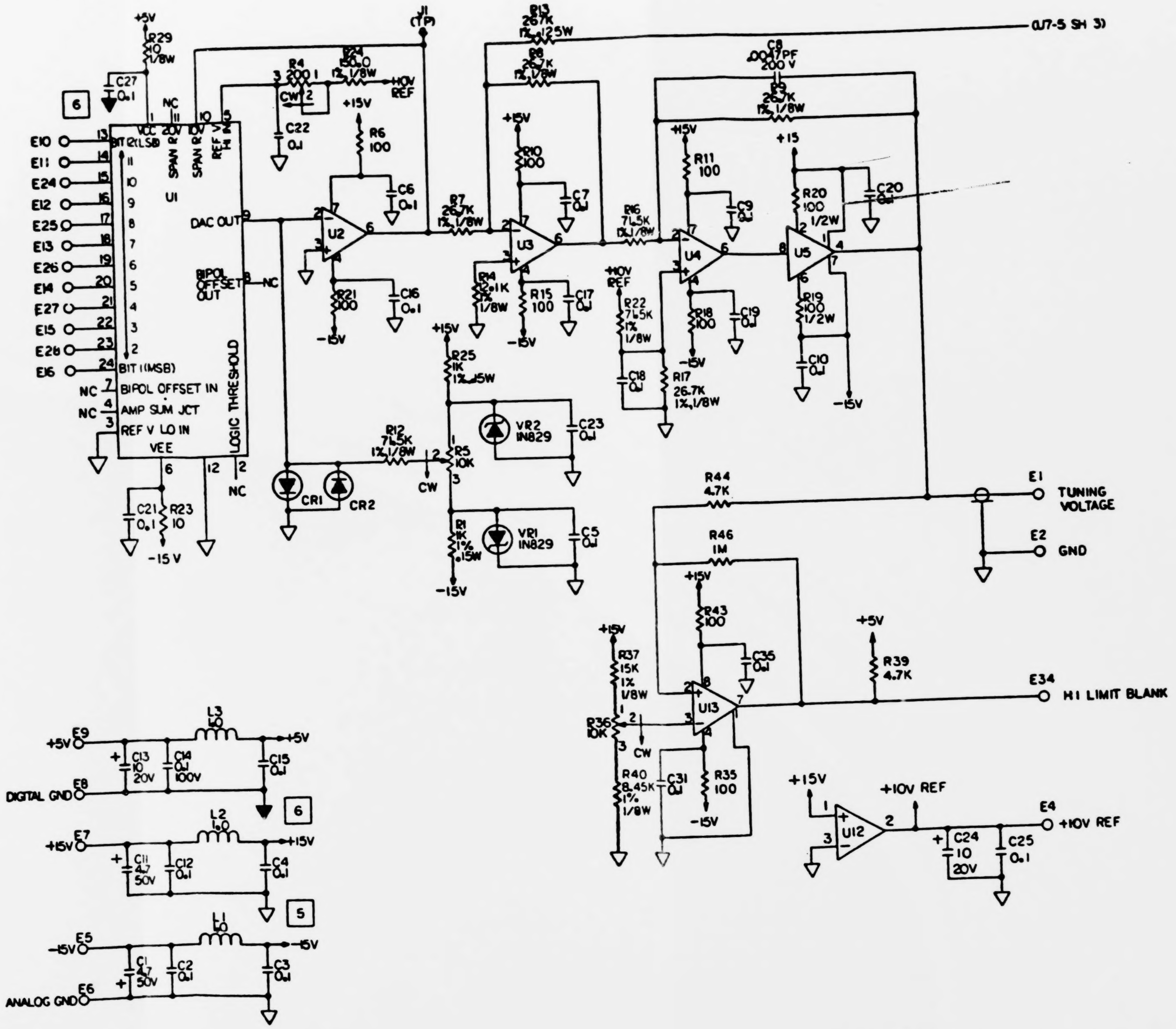


Figure FO- 29 Receiver Sweep ECA A15 (with CCA A15A1, P/N 5048944-1) Schematic Diagram (Sheet 2 of 3)

best copy available

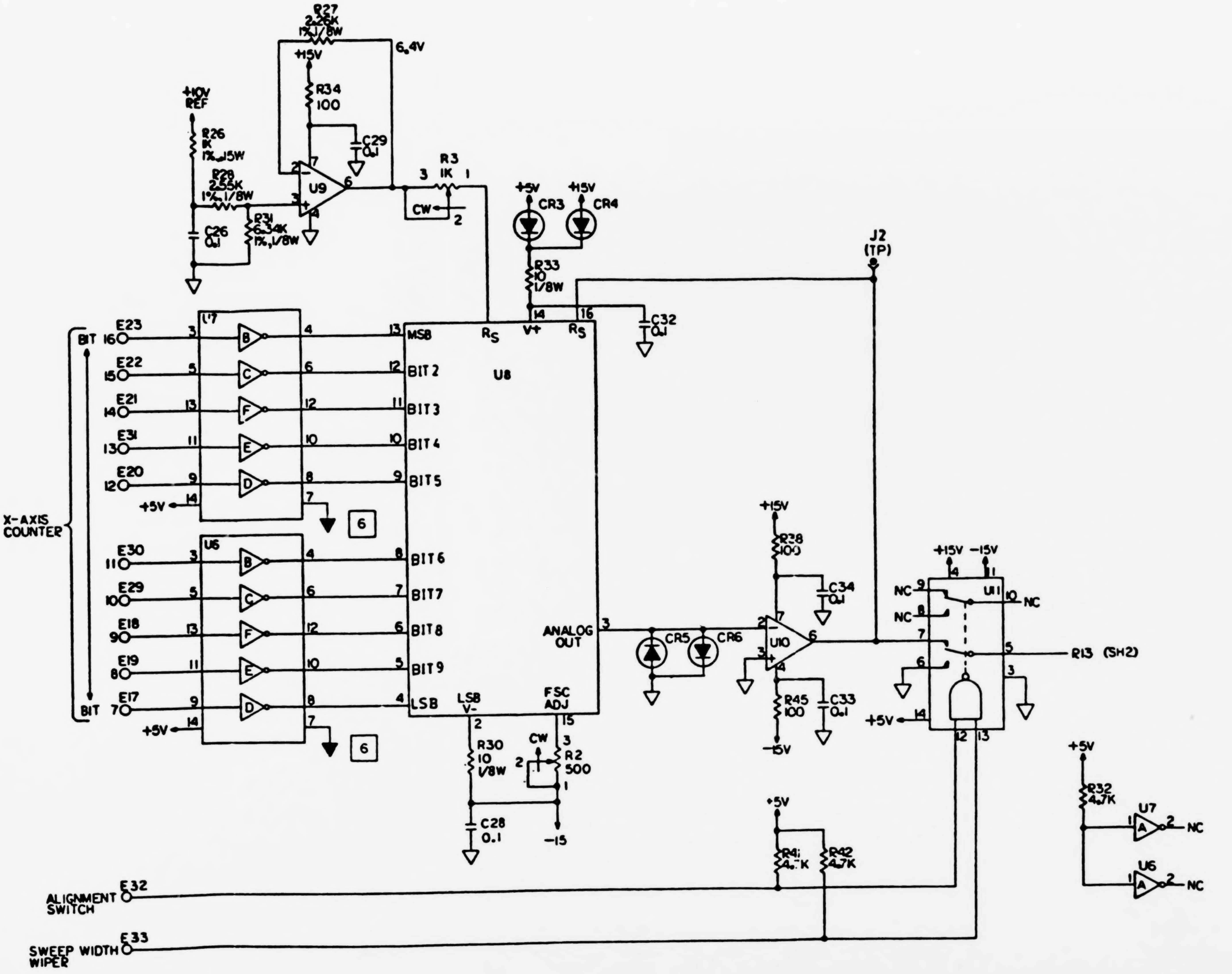
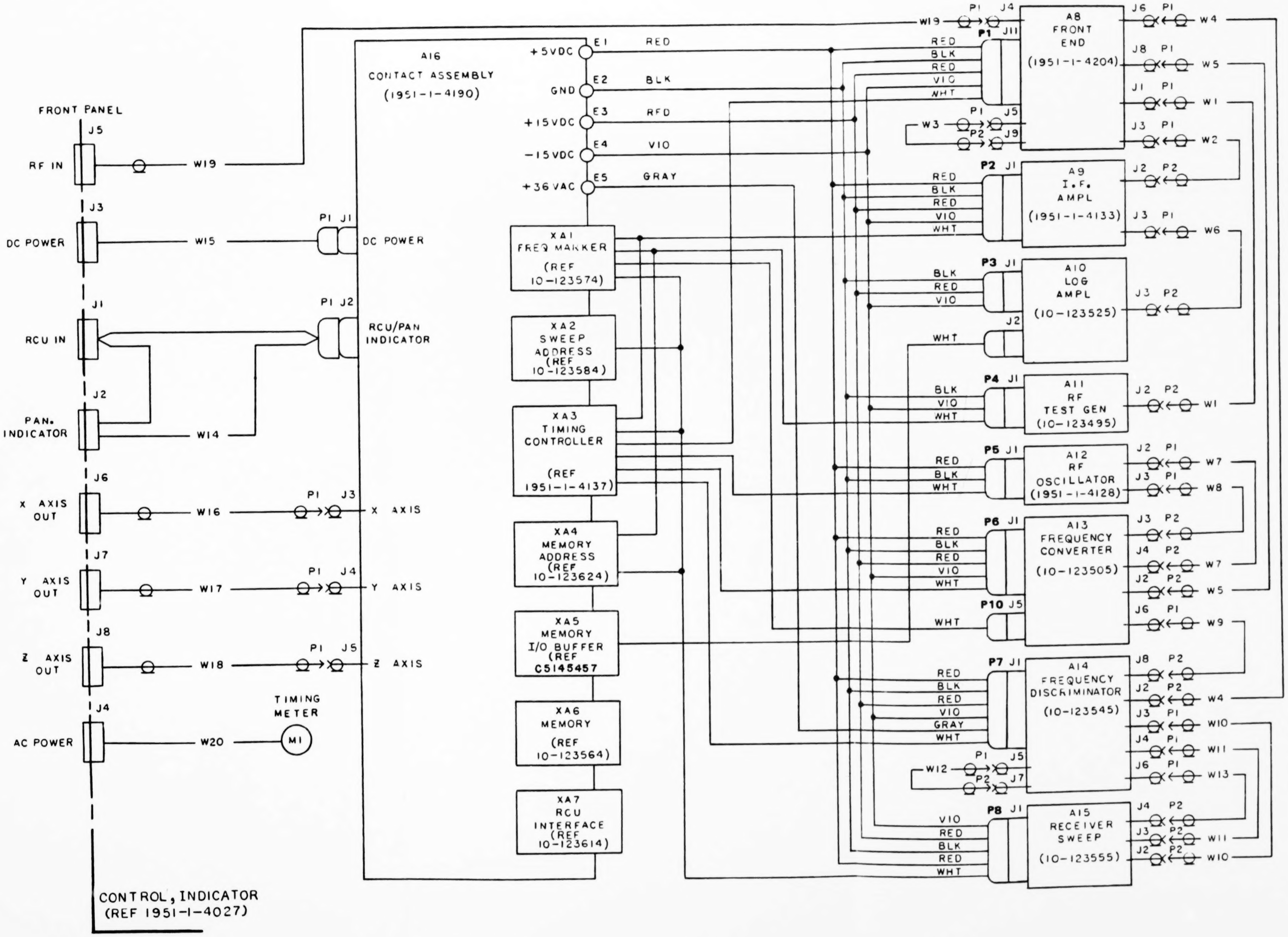


Figure FO- 29 Receiver Sweep ECA A15 (with CCA A15A1, P/N 5048944-1) Schematic Diagram (Sheet 3 of 3)

best copy available



CABLE ASSEMBLIES	
W1	1951-1-3067-1
W2	-1- -2
W3	-1- -3
W4	-1- -4
W5	-1- -5
W6	-1- -6
W7	-1- -7
W8	-1- -8
W9	-1- -9
W10	-1- -10
W11	-1- -11
W12	-1- -12
W13	-1-3067-13
W14	-1-4206-1
W15	-1-3137-1
W16	-1-4207-1
W17	-1-4207-2
W18	-1-4207-3
W19	1951-1-3136-1
W20	1951-1-3297-1

NOTE:-

PARTIAL REF DES ARE SHOWN; FOR COMPLETE DES, PREFIX WITH UNIT NO. AND SUBASSY DES.

Figure FO-30. Indicator Control Wiring Diagram